JAVA'S JUMPIN' Web services and wireless apps are on the JavaOne agenda. Pages 8 and 106.

REVIEW GRADING GROUPWISE 6 We review Novell's latest groupware release. The features are there, will users follow? Page 48.

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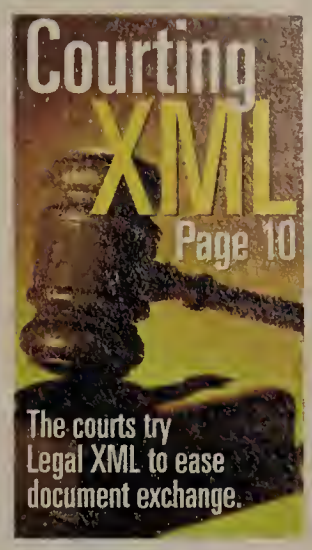
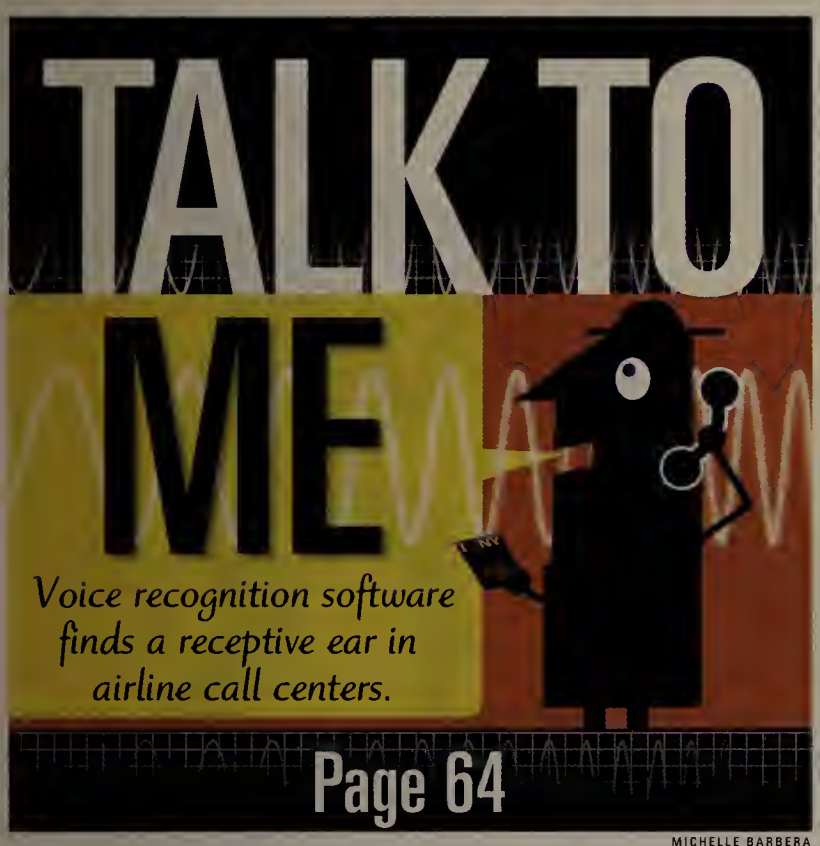
NetworkWorld

June 4, 2001 Volume 18, Number 23

The network portal: www.nwfusion.com





MICHELLE BARBERA

Users call new domains too confusing, costly

BY CAROLYN DUFFY MARSAN

Big business is venturing cautiously into the newest frontiers of cyberspace: the .biz and .info top-level domains due to launch this summer.

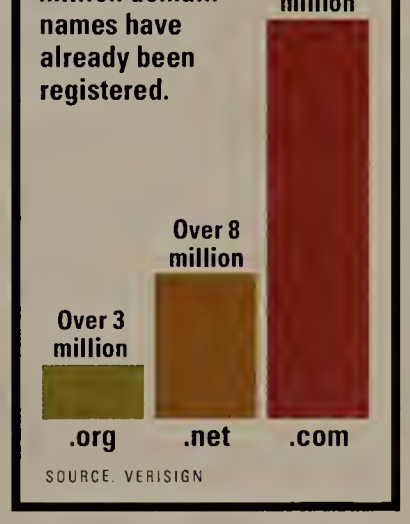
As the new registries start processing claims and taking early registrations, many companies are choosing to protect only a few of their top brand names and trademarks rather than duplicating their existing .com portfolios. That strategy may save legwork and money in the short term, but at the risk of inviting expensive disputes down the road.

Top corporate complaints about the new domains are their confusing legal processes and hefty fees.

"The business community is concerned about the cost, the complexity of the process, and the lack of standardization" in the registration process for .biz and .info names, says Marilyn Caid, director of Internet and e-commerce policy and advocacy at AT&T.

"It's not clear that .biz won't primarily be a clone of .com," Caid adds. "The goal of the new domains needs to be expansion

See **.biz**, page 102



Marketplace participants share their tales of woe

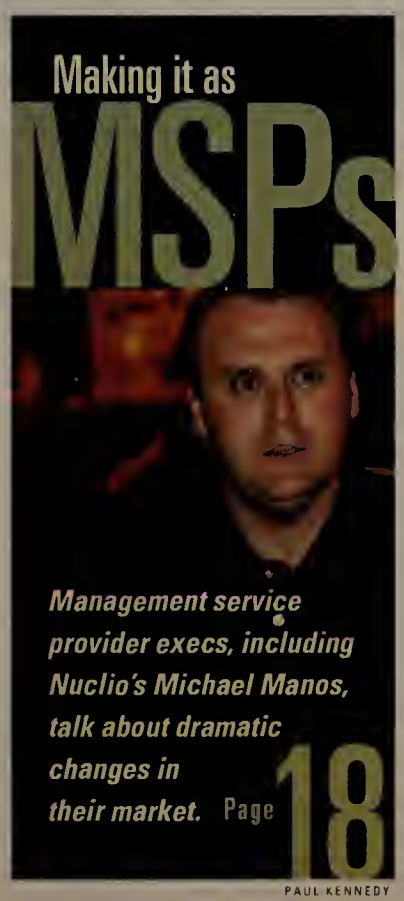
BY KATHLEEN OHLSON

Business-to-business marketplaces have gone from hip to hurting faster than an e-commerce strategist can say, "This is harder than anyone imagined."

The mounting failures and near-failures of these touted marketplaces have left participants wizened and wary, although optimists still insist the model will see its day. This is the first of a two-part series that focuses on the lessons learned about costs, complexities and resistance to change by those who have tested the business-to-business marketplace waters as buyers, suppliers and consultants.

"Companies are starting to realize the devil is in the details," says Philip Jung, an analyst at A.T. Kearney. "It takes time to put software in place. It costs money, and with the U.S.

See **B2B**, page 104



PAUL KENNEDY

Router roundup on tap at SuperComm 2001

BY JIM DUFFY AND TIM GREENE

ATLANTA — Router enthusiasts will have a busy show at SuperComm 2001 this week, as several companies herald new products for pushing high-speed data services from the carrier cloud into corporations.

Cisco will unveil a router for enterprises and service providers targeted at specific applications. Part of the appeal of the box is that it will save valuable rack and collocation space, and reduce power consumption. Meanwhile, Cosine and Unisphere Networks are introducing bigger, faster edge switch routers for VPNs, firewalls and other network-based applications that sweep past offerings in this category from rivals Lucent and Nortel.

The gear from these three vendors is intended to enable unobtrusive delivery of a new generation of high-speed IP and Internet data services. They are designed to pack as much

See **SuperComm**, page 14

Newspaper $5.00

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Remote Management	Included	$549	$511	fee-based service
Operating System	Included	$799	$799	$799
Actual Price	**$995**	**$2,746**	**$3,179**	**$3,384**

Source for competitor server prices: Respective companies' web-based datasheets, 3/2001.

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NetworkWorld

JUNE 4, 2001

8 **Web services** to be in spotlight at JavaOne.
10 **State court** to try Legal XML.
12 **Cisco** teams with partners to push e-learning service.
12 Integration drives **PeopleSoft's** retooled CRM applications.
14 **Router vendors** to show wares at SuperComm 2001.
16 **IBM's WebSphere 4.0** garners strong reviews.
16 **Root-cause analysis tool** aims to protect service levels.
18 **Management service providers** come back for more.
22 **Tally** debuts Web-based asset-management service.
106 **Open Market** expands content management.
106 **Mobile Java** taking to the air.

Keycorp's Dutile says WebSphere 4.0's Web server support is key.

Page 16

Infrastructure

25 Bug puts bite on **Windows Terminal Services.**
25 **LeftHand** joins NAS, SAN data.
26 **Firepad** packages graphics for Palm OS clients.
26 Intel's **iPOD** extends PBX connectivity with VoIP.
28 **Funk** enhances wireless security software.
28 Once a high flyer, **PictureTel** fades away.
30 **Dave Kearns:** Jousting with the Open Source movement.

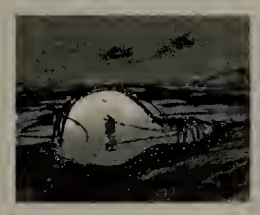
C&W CEO Wallace talks about tackling the market in slowed economy.

Page 33

Carriers & ISPs

33 **C&W CEO** says hosting and VPNs to be growth areas.
33 Web hoster **Conxion** adds applications management through Totality.
37 **Johna Till Johnson:** 'Out' clauses key to a good carrier contract.

SPECIAL FOCUS: FIXED WIRELESS. *This market may be down, but don't count it out.* **Page 38.**



Looking toward a future of megacarrier consolidation.

Page 62

The Edge

41 **Siemens** embraces packets.
41 **Riverstone** introduces new service provider switch.
44 **Astral Point** certifies entry into ILEC market.
44 **Integral Access** unveils 'mini-POP' for multitenant units.

Enterprise Applications

47 **Access management tools** grow up.
47 **Failed marketplaces** not deterring businesses.
48 **Review:** Novell adds some goodies to its GroupWise groupware.
50 **CRM** consolidation is on.
52 **Scott Bradner:** Your tax dollars at work.

Net engineer Barry Katzman is going it alone as an independent consultant.

Page 72

Technology Update

55 Pushing transactions to the edge.
56 **Gearhead:** Cool graphics in XML.

CASE STUDY

When Firestone announced its initial tire recall last August, its Web site was overwhelmed. The company quickly turned to a content delivery provider to get the site back on the road. *Page 67*

CONFIGURATION MANAGEMENT

NetworkWorld REVIEW

Configuresoft's Enterprise Configuration Manager wins our test of configuration management software. *Page 69*

FACE-OFF

Should high-tech workers unionize? Mike Blain, president of the Washington Alliance of Technology Workers, says yes. Harris Miller, president of the IT Association of America, says no. *Page 61*

RICH DAHMS

Management

Finding contract work: Should an IT consultant go it alone or rely on an agency to line up assignments? **Page 72.**

Editorial: Which megacarrier will live to tell the tale? **Page 62.**

Paul Hoffman: Power concerns drive many businesses to collocation. **Page 63.**

Howard Anderson: Fixed wireless — or fixed stupidity? **Page 63.**

Backspin: Upgrading IT's summer. **Page 108.**

'Net Buzz: Pop-up ads go too far when they "stalk" you across applications. **Page 108.**

Net Know-It-All.....Page 18
Ask Dr. Intranet.....Page 55
Message Queue.....Page 62
Editorial and advertiser indexes.....Page 101

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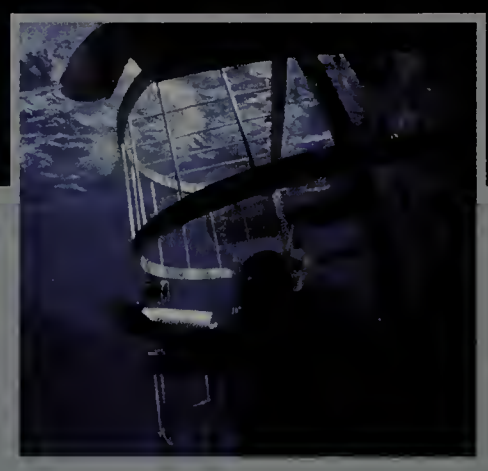

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INTERACTIVE

Last chance for recognition

Done something really cool and exciting with your network this year? Nominate your network for *Network World's* annual User Excellence Award. Entries are due June 11. **DocFinder: 4240**

FORUMS

ISDN and Cat 5

A user wants to know how far one can run primary rate ISDN over Category 5 cabling. **DocFinder: 4531**

Migrating from token ring

Another user seeks advice on making the move from token ring to Ethernet. **DocFinder: 4532**

Setting up a WAN

And another user with offices in New Mexico and Louisiana seeks suggestions on setting up a WAN that can move large (100M-byte) files fairly quickly. Suggestions? **DocFinder: 4533**

NEWSLETTERS

Growing leaves

Don't install a line-of-sight MMDS service in the fall or winter. Otherwise, you may end up with connectivity that only works half the year. **DocFinder: 4534**

Getting NetSmart

Events Editor Sandra Gittlen writes about how off-site training works for you even beyond the education. **DocFinder: 4535**

News alerts

Network World offers six focused e-mail News alerts to keep you abreast of the most significant developments of the week on LANs, storage, network/systems management, The Edge, Cisco and Microsoft. Sign up today. DocFinder: 4337

State of the LAN: The 21st Century network

Learn about cutting-edge technologies and design strategies from leaders shaping the future of the LAN. Register now. **DocFinder: 4442**

COONEY'S CORNER

The best of the Netflash daily newsletter

Much ado about nothing

Shakespeare once wrote: "Mend your speech a little, lest you may mar your fortunes." Seems the executives at Lucent and Alcatel heeded that warning earlier this week when they called off their potential $23 billion merger, er, acquisition — oh, whatever it was. According to reports, the companies just couldn't agree on the word "equal." The Alcatel executives apparently wanted to be a little more equal than their potential Lucent brethren. A few other words also played a big part in the negotiations — arrogance and ignorance were the two I saw the most. Arrogance that both companies thought they could push the other around and dictate terms. And ignorance that both companies are struggling and that perhaps the current economic malaise will suck both companies under like quicksand. For more on this story see: **DocFinder: 4545**

Video: 10 start-ups to watch

In our annual NW200 issue, *Network World* editors picked 10 start-ups worth watching this year. The list of those to watch in 2001 consists of new ventures launched by experienced network professionals. John Gallant, president and editorial director of *Network World*, sat down with these hot companies at this year's N+I to unearth why they will be successful. **DocFinder: 4546**

IEEE 1394b to rev up multimedia networks

The IEEE 1394 multimedia networking technology will get a big boost to speeds as high as 1.6G bit/sec later this year, as vendors begin using a new version of the IEEE standard, introduced this week by the 1394 Trade Association. **DocFinder: 4547**

IBM, NEC, Hitachi and Fujitsu team on Linux

IBM, NEC, Hitachi and Fujitsu Wednesday announced plans to begin working together on strengthening the Linux operating system. **DocFinder: 4548**

— Michael Cooney, associate news editor

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COLUMNISTS

Compendium

If you can't beat 'em

Fusion Executive Editor Adam Gaffin finds that Hormel has given up the trademark battle over SPAM luncheon meat and its connection to junk mail. **DocFinder: 4536**

Home Base

Far cry from a cubicle

Net.Worker columnist Jeff Zbar gives us the second in his series on setting up a personal home office. **DocFinder: 4537**

Help Desk

Using the 802.11b standard

Ron Nutter helps a user determine whether to use wireless networking in an expanded workplace. **DocFinder: 4538**

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NEWS BRIEFS, JUNE 4, 2001

PSINet files for bankruptcy

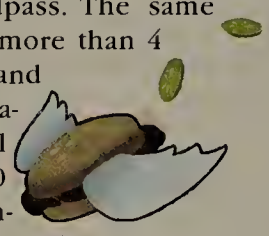
Long enmeshed in financial difficulties, ISP PSINet and 24 of its subsidiaries in the U.S. have filed for Chapter 11 bankruptcy. Four of the company's subsidiaries in Canada also filed for bankruptcy protection. PSINet officials say the company will continue to operate while the Chapter 11 process is resolved and that customers should not be affected. PSINet has about $300 million in cash on hand, officials say.

Dow jumps on VoIP bandwagon

Dow Chemical — along with partners Cisco and EDS — this week is expected to announce the details of DowNET, a global voice-over-IP network aimed at letting Dow employees communicate through IP voice and video applications. The project includes hardware and software from Cisco's Architecture for Voice Video and Integrated Data product line, with integration work by EDS. Dow plans to deploy more than 40,000 Cisco IP telephones to offices in about 170 countries. DowNET will also include the integration of IP videoconferencing technology with Microsoft's NetMeeting, which is already widely used throughout the company.

Big Mac, hold the cash

McDonald's is serving up cash-free transactions in the Chicago area, thanks to ExxonMobil's Speedpass. The same technology used by more than 4 million Mobil — and now Exxon — gas station customers will be available at 400 Chicago-area McDonald's now that a six-month pilot program in nine outlets is complete.



With Speedpass, customers simply wave a tiny radio transponder at a drive-up or inside register, and the transaction takes place wirelessly. The transponders transmit unique ID numbers to a reader inside the cash register using radio-frequency identification signals, and the system charges a customer-designated credit or debit card.

Major players to bolster Linux

IBM, NEC, Hitachi and Fujitsu last week announced plans to work together on strengthening the Linux operating system. The four companies will jointly commit up to $165 million to the project, which will focus on enhancing the reliability of Linux to make it more suitable for use in large organizations and corporations, says an NEC spokesman.

The results of the project, which is expected to last between one and two years, will be published to the global Linux community.

EMC cutting 4% of workforce

Storage vendor EMC last week said it would reduce its worldwide workforce by 1,100 employees, or 4%, in an effort to cut operating expenses and deal with the current economic slowdown.

In a statement about strategies for expanding its business, the company said it would make the cuts within the next several weeks and that it will leave its total employee base at 23,300 — the same figure the company started with at the beginning of the year. EMC said it would seek to eliminate redundancies and overlap in certain field operations. The company did not provide details about where the cuts would occur.

EMC also will reduce the resources of the server business it inherited when it acquired Data General in 1999. EMC said it will also reduce the use of consultants and contractors, lower travel expenses and delay some facility expansion, the company said.

FCC's newest member takes office

The newest member of the Federal Communications Commission has some highly relevant industry experience, given the hard times in the technology sector: The communications company she just left filed for bankruptcy this month.

Kathleen Abernathy was sworn in last week as an FCC commissioner. Abernathy served as vice president for public policy at voice and data services provider Broadband Office until President Bush appointed her to replace one of the three outgoing commissioners.

Broadband Office, once one of the fastest growing venture-backed Silicon Valley start-ups, filed for Chapter 7 bankruptcy May 9. Abernathy served as legal advisor to FCC Commissioner Sherry Marshall and Chairman James Quello from 1992 to 1993.

Agere files suit against Proxim

Agere Systems, the former microelectronics unit of Lucent, has filed suit against Proxim, accusing the wireless network company of infringing on three of its wireless LAN patents.

The patents are related to multirate wireless data communications systems, antenna apparatus and tungsten metallization, all currently used in Proxim's WLAN products, Agere said in a statement. Agere filed the suit after negotiations with Proxim during the past two months failed, an Agere spokeswoman said.

Proxim would not comment on the case.

Web services to be talk of JavaOne conference

BY JOHN COX

SAN FRANCISCO — This week's annual JavaOne conference will focus a lot of attention on so-called "Web services" and formal releases of code for a raft of new Java APIs.

Sun has spent the past year beating the drums about Web services and in February launched the Sun Open Network Environment (ONE), a counter to Microsoft's .Net Web services scheme. Sun ONE includes a set of server software from Sun partner iPlanet and relies on standards such as XML and the Simple Object Access Protocol (SOAP) to build and run Web-based applications that can be activated by other software components.

Conference attendees can choose from among 40 formal and informal sessions dealing with building software that can be accessed by clients using key Web services protocols. These include sessions comparing Sun ONE vs. .Net and others teaching how to use Java server pages to set up Web services.

So far, there is no Java standard for Web services. A formal Java Specification Request, JSR 109, for "Implementing Enterprise Web Services" was only approved in April. This project will outline a programming model, that is, Java classes and APIs for writing code on clients and servers, and a description of how to deploy a Web service atop the Java2 Enterprise Edition specification. The expert group guiding this project plans to have a draft document for review by the Java community in August.

Sun executives say the beta-test version release last week of Java2 Standard Edition (J2SE) 1.4, essentially aimed at desktop operating systems, is a key step toward Web services.

The new version incorporates support for XML, which is essential to any concept of Web services. Also new is an updated set of Java Foundation Classes for client graphical user interface tasks, faster Java two-dimensional graphics and improved security with the integration of such extensions as Java Cryptography. Final code for J2SE 1.4 will ship by year-end, according to Sun.

Developers face an array of key challenges in building Web services in the short term. These include learning and using XML message formats, creating service databases called registries, and learning to work with non-Java Web services, such as those based on Microsoft .Net.

More Java buzz

A good deal of the other JavaOne activity this week surrounds recent or upcoming Java software implementations, the output of the Java community process.

One new release anticipated by users is the Enterprise Java Beans (EJB) 2.0 specification, which updates the description of creating and using Java software components. One key change is letting EJBs work with the Java Message Service. This will let Java components interact using different types of asynchronous messaging, such as e-mail, HTTP and Java Message Service.

Another change in EJB 2.0 will make it easier to create and relate EJBs to back-end

See **Java**, page 106

Correction

In this week's issue, the story, "Failed marketplaces not deterring businesses," (page 47) should not have listed the companies Network Oil and OilfieldCapital.com as defunct. Due to the production process at *Network World*, this error could not be corrected in the story before publication. *Network World* regrets the error.

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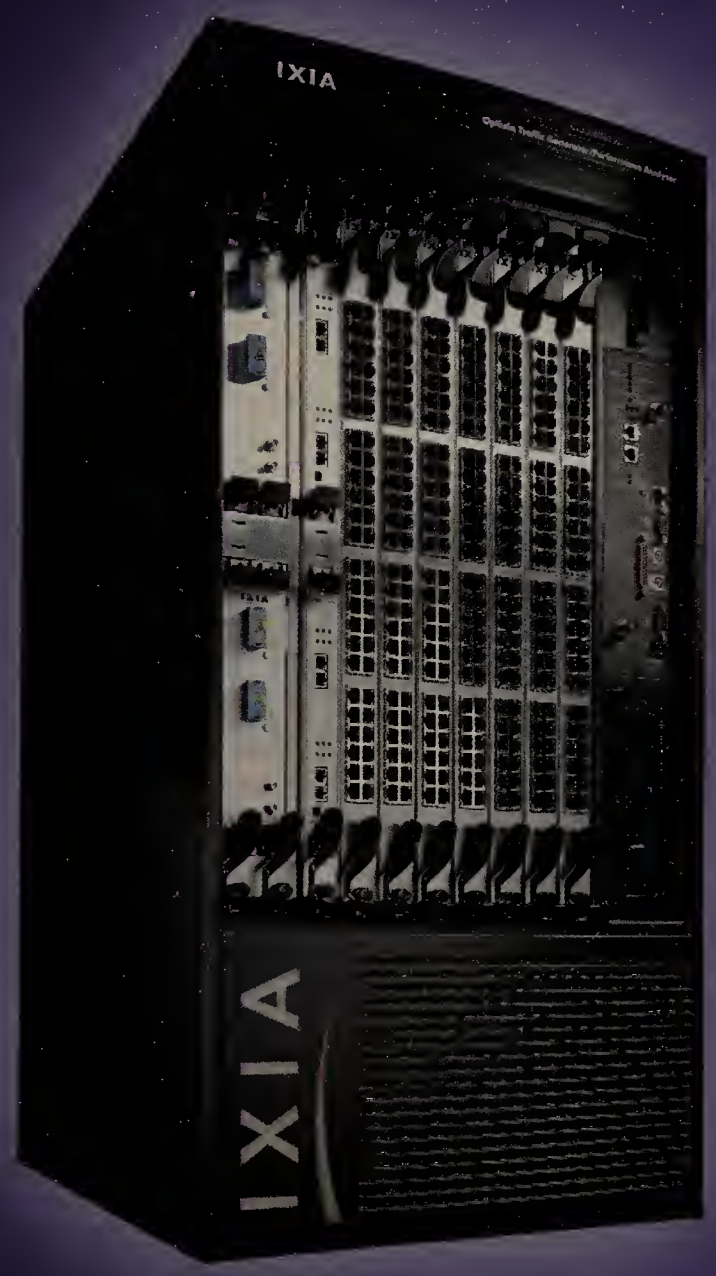

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State courts look to pass judgment on XML

Document-encoding technology seen by some in legal community as key to electronic filing services.

BY ELLEN MESSMER

Lawyers, courts and legal cases generate mountains of paperwork, but a few states have taken the ground-breaking step to allow electronic filing of documents directly to court Web sites for processing over their intranets.

While e-filing is catching on in states such as Georgia, New Mexico, California and Washington, the process of managing legal documents online raises thorny questions about the need for signatures, common security practices and technical standards for interoperability in document exchange. Counties today take varying approaches to e-filing, but there is a growing consensus that the document-encoding technology called XML can be the basis for statewide — and perhaps even nationwide — electronic filing.

"The XML language is the most powerful I've seen that can help us accelerate use of e-filing."

Bob March, clerk of court for the New Mexico U.S. District Court

Georgia has led the charge, as its judiciary and universities have devised an XML tagging specification for the courts dubbed Legal XML. The specification will go on trial next week as four Georgia courts and four e-filing services show how it can be used to transmit XML-based documents to court servers and to competing e-filing services.

These courts and document clearinghouses today can't easily share electronic documents. But the use of format-neutral XML tags encoded around content is expected to make it easier to process information received over the Internet as long as the application server receiving it supports XML, too.

"We're filing electronically in several courts now, but they all use different systems," says Jerry Garland, project manager at Georgia's court automation commission, a division of the Georgia Commission of the Supreme Court, which oversees 1,000 courts in 159 Georgia counties.

The Georgia commission funded research by Georgia State University to devise the Legal XML format under the direction of lawyer Todd Vincent.

XML mandate

Georgia intends to mandate XML as a technology standard if interoperability testing of it with two superior courts, two state courts and four e-filing service providers goes as planned. The vendors involved are @court, e-filing.com, Counterclaim.com and Verilaw.

"Vendors like us can provide XML data to the electronic file manager for each case management system," says Mohammed Shaikh, CEO at e-filing.com, which receives documents in various formats, translates them into the court-required format and tracks document flow.

Shaikh notes that Georgia also wants to have uniform rules for business practices, such as using encryption and responding when a Web server goes down.

Georgia hopes to complete the testing of Legal XML by August, and if it works out, it's likely to be required for use in courts statewide. In addition, backers of Legal XML formed a nonprofit organization last winter (see www.LegalXML.org) to promote it as a national standard.

Some Georgia courts have objected to Legal XML, electing not to jump on the Legal XML bandwagon.

"In Cherokee County, we've taken a different approach," says Judge Charles Robertson, who helped oversee the implementation of a LAN-based e-filing system in his courthouse last month for processing legal claims received directly over the Web or from third-party providers.

Robertson, who now has a PC at his desk to review cases electronically, is not convinced Legal XML is ready for deployment and worries that it might be too expensive.

"This is a small magistrate's court, and we're looking for something simple here," he says. Robertson says the e-filing system just put in place is the first step to give citizens easier access to the court and for the court's telecommuting clerical staff to work from home, if needed.

Judging XML

There's other evidence, though, that XML should be considered innocent until proven guilty.

"The XML language is the most powerful I've seen to help us accelerate use of e-filing," says Bob March, clerk of court at the U.S. District Court in New Mexico, which has used e-filing for about three years.

The New Mexico court is redesigning its court management system to support XML. The court in Albuquerque has a T-1 line for receiving legal documents processed through the @court hosted service for receipt by 14 judges.

"Once filed, these documents become immediately available to clerks and the judges, so everyone likes it," March says.

Sign of the times

The states and various counties embracing e-filing don't necessarily have the same perspective on whether electronic documents need to be signed when submitted.

In Georgia, the courts have settled on a rule that some sort of electronic signature has to be attached to documents. Typically, this is not a public-key digital signature, but a bitmap, which can be affixed like a stamp to the e-document, e-filing.com's Shaikh says.

In Robertson's court, the basis for validating a document rests on requiring credit card payment for the filed document and a phone number to check the sender's whereabouts.

Because the court is limited to reviewing cases related to claims up to $15,000 and in-person appearances are required in trying cases, this method of verifying the electronic document is sufficient, the judge asserts.

"All a signature is is a derivation, and this is a method for determining where a mark was derived," he says.

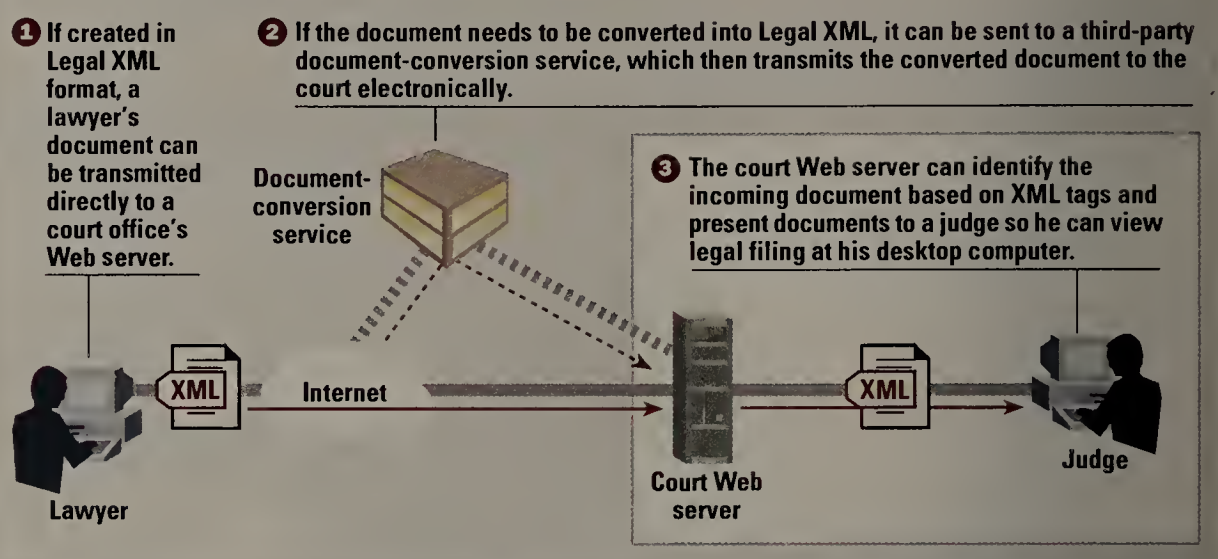
California only began allowing e-filing within the last year and is interested in backing statewide standards for it, says Michael Geller, a lawyer at the Merino Valley, Calif., law firm Geller and Stewart. His law firm sends its court filings to the Riverside County courthouse as imaged TIFF files to service provider e-filing.com, which converts them into the format the court wants.

"But California doesn't require a signature on an electronic document," Geller says. "Riverside basically took the attitude that if you send your document electronically, it's signed."

But old-fashioned paper still has to be signed to be considered valid by the court in California. ◪

XML's day in court

How filing court documents will work with Legal XML:



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An SAIC Company

Cisco pushes product for e-learning

BY PHIL HOCHMUTH

SAN JOSE — Cisco last week announced a new product and service bundle intended to nudge companies into using Internet-based training and educational programs.

Cisco's e-learning service is a package of its Enterprise Content Delivery Network (ECDN) integrated with applications from software and service vendors. Services based on Cisco's ECDN products could help companies conduct employee training or customer seminars over the Internet.

Express Personnel, an Oklahoma City staffing firm with 400 franchise offices worldwide, is installing its own Cisco Content Distribution Managers for delivering sales instruction videos to 70 sites in North America. Video content will be pushed to the Content Distribution Managers, which act as servers, in each office at night, saving bandwidth during working hours, according to Art Atkinson, vice president of training and development at Express Personnel.

"Our offices only have 56K [bit/sec lines] running to them," Atkinson says, which makes it impractical to send live streams. "Each workstation in an office will be accessing video over the local area network," which will also provide better video quality than a stream, he adds.

Cisco has partnered with two network integration firms — KPMG and iXL — to help deploy the e-learning service in organizations. Cisco has also teamed with several service providers that will offer Cisco-based e-learning services based on an application service provider model.

Service providers certified to offer Cisco e-learning services include Convergent Media Systems, Digital Island, Digital Pipe, Relera and Verado.

According to Cisco, a company with 3,000 employees in 50 sites could deploy Cisco's e-learning service for approximately $1 million, including integration costs. For an organization with 25,000 employees in 300 sites using two ASPs for deployment, the cost would be around $5 million. ◪

E-learning product lineup

These Enterprise Content Delivery Network products make up the core of Cisco's e-learning service offering:

Cisco Content Distribution Manager: Hardware device for administering e-learning content.

Cisco Content Engine: Content streaming server.

Cisco IP/TV Broadcast Server: Server for delivering full-motion video to desktops.

Cisco IP/TV Control Server: Scheduling server for network-based video content.

Integration drives PeopleSoft's retooled CRM apps

BY ANN SULLIVAN

LAS VEGAS — With an eye toward large customers who want a completely integrated, Web-based customer relationship management package, PeopleSoft this week will launch its retooled CRM suite.

Whereas myriad CRM products solve one piece of the customer management puzzle, PeopleSoft 8 CRM tries to do it all, from tracking sales leads and routing inquiries to analyzing customer profitability and linking to back-office financial data. It is intended to compete with full-featured CRM applications from Siebel, SAP and Oracle.

The PeopleSoft 8 CRM suite includes six sales, marketing and service applications, five analytic tools for gleaning sales trends from the data collected, and a customer portal that lets employees, suppliers and partners view the assembled data. Each application is based on PeopleSoft's Java-based Internet architecture, which is new to its CRM suite.

PeopleSoft took the CRM applications it gained through its December 1999 acquisition of sales-force automation specialist Vantive and rewrote the code to match its other Internet-based enterprise resource planning (ERP) applications.

PeopleSoft 8 CRM resides on a server maintained on-site by the user or through eCenter, PeopleSoft's application hosting division. No code is required on client workstations or devices now that the Vantive applications have been reworked. In previous versions, the CRM software ran on client devices. With PeopleSoft 8 CRM, users can access sales, marketing and customer service applications though any device that has a Web browser — such as a PC, laptop, PDA or Web phone.

More important than ease of access, however, is the integration this Web-based architecture will afford. By shifting its CRM applications to its newly developed HTML- and XML-based platform, PeopleSoft can more tightly tie its CRM applications to the rest of the PeopleSoft 8 ERP platform — all 167 Web-based applications that comprise PeopleSoft 8.

The revamped PeopleSoft 8 CRM suite also will enable tighter integration with non-PeopleSoft back-office applications, says Kevin Scott, an analyst with AMR Research. PeopleSoft is ahead of rivals Siebel, SAP and Oracle in delivering this pure Internet-based architecture, Scott says.

Integration with back-end applications such as financial and order management systems is key to a successful CRM implementation, but it's not often easily or inexpensively achieved. "One of the largest costs — and certainly the highest cost overruns — comes from the systems integration requirements," says Joshua Greenbaum, principal at Enterprise Applications Consulting.

PeopleSoft 8 CRM beta user Polycom has products in its back office for financials and order management, but this is the company's first foray into CRM tools from PeopleSoft, says Paula Casey, director for channel sales for the Milpitas, Calif., maker of voice and video gear.

Integration with its existing PeopleSoft applications is one of the main reasons Polycom chose PeopleSoft 8 CRM. Once the beta-test period ends, the company is hoping for a relatively speedy implementation, because the CRM platform will be the same as the platform on which its ERP applications will run.

"We've been researching this for a while now," Casey says. "We feel we can get the system up and running in six to eight weeks with PeopleSoft's help."

Casey says two features are particularly important. First, software upgrades are done on the server, so "everybody will get the benefit of upgrades at the same time," she says. Second, access is browser-based, so Polycom's traveling sales and management personnel can stay connected.

Instead of traditional per-seat licensing, PeopleSoft will base its licensing model on company metrics such as annual revenue and operating budget. An average price for PeopleSoft's CRM applications runs about $500,000, according to a company spokesman.

PeopleSoft 8 CRM is set to be launched this week at the software maker's user conference in Las Vegas. It will be available June 29. ◪

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SuperComm,
continued from page 1

power as possible into the smallest available package.

The Cisco 7400 Application Specific Router (ASR) is targeted at specific applications: broadband aggregation, managed customer premises equipment (CPE) service and network service appliance applications. The router, which runs Cisco's IOS operating system, can be configured for one of those applications and redeployed for another should a company or service provider's requirements change.

Previously, users had to purchase new equipment with new software images if requirements changed, for example, from broadband aggregation to managed CPE service.

The 7400 ASR is one rack-unit (1.75 inches) high. It sports a slot for housing one of 40 port adapter cards for Cisco's other 7000 series routers, two 10/100/1000M bit/sec Ethernet ports and an auxiliary/console port for configuring the router.

Port adapter cards include Ethernet, Fast Ethernet and Gigabit Ethernet; ATM and packet-over-SONET; serial, multichannel and channelized WAN; ISDN; and frame relay. Line rates range from 64K bit/sec to OC-3 (155M bit/sec).

Up to 40 7400 ASRs can be stacked in a telephone company's rack using one of the Ethernet ports attached to a high-density Ethernet aggregation switch in the bottom of the rack. Each router can support up to 8,000 subscribers, or up to 320,000 subscribers in a rack.

The 7400 ASR consumes 50 watts of power, which is one-fourth to one-sixth that of alternative products, sources say. It has a forwarding performance of 350,000 packet/sec and is the smallest Cisco platform to incorporate the company's Parallel Express Forwarding (PXF) ASIC, a dedicated processor for handling filtering, queuing, network address translation (NAT) and accounting at wire speed.

Other PXF-based Cisco routers include the Cisco 7200, the 10000 Edge Services Router and the 7600 Optical Services Router.

The 7400 ASR will face its stiffest competition from Unisphere and Tiara rather than dedicated broadband aggregation/subscriber management boxes from Redback Networks and Nortel, due to size and service variability, says Deb Mielke, principal of consultancy Treillage Network Strategies.

"Cisco's finally addressing some service provider needs, especially for small sites," she says. "What they have is a smaller router with a lot more functionality. As service providers expand geographic reach or enter new markets, things like this are really important."

The only downside is Cisco could have come out with this product sooner had it not become defocused during its period of extraordinary growth.

"They've turned the corner," Mielke says. "They're finally realizing [routers are] still their core business and they've got to protect themselves to continue the domination."

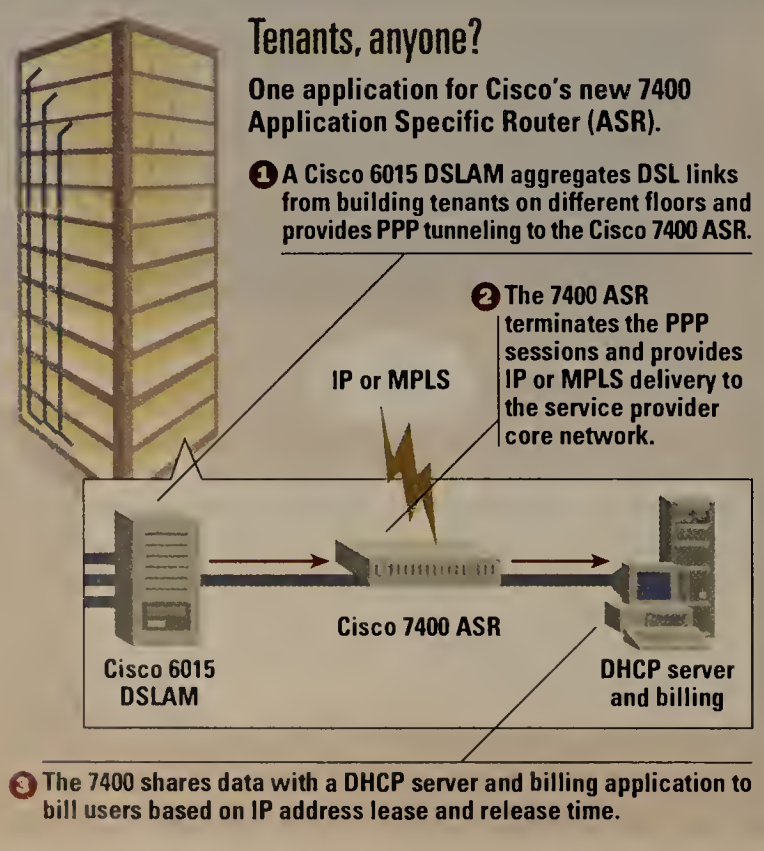
Time will tell if the 7400 ASR can contribute to that mission. One of its applications, broadband aggregation, has the router sitting in a service provider's central office taking in feeds from xDSL, mobile wireless, satellite and cable links, and providing access to the Internet, enterprise or service provider core network.

The 7400 ASR authenticates subscribers on those access links and can push Web portals and other customized content to those subscribers based on their profile.

As a managed service CPE device, the 7400 ASR can label traffic with Multi-protocol Label Switching tags, designating that traffic for a VPN tunnel or a set of other Differentiated Services within the service provider cloud.

For network service appliance applications, the 7400 ASR can backend an aggregation router to balance traffic loads for dedicated quality-of-service enforcement, access control list filtering, NAT, accounting and several other subscriber- or traffic-specific functions.

The 7400 ASR has an entry price of $19,000. It will be available next week.



ROUTERS APPEAR EVERYWHERE

A few other router vendors will make big splashes at SuperComm 2001, focusing on speed, density and resiliency.

Pluris will demonstrate the scalability, virtual trunking and software fault tolerance of its Teraplex 20 terabit router. For scalability, Pluris will show four Teraplex 20 chassis configured as two separate routers connected by an optical backplane 35 feet apart. Pluris deploys an optical-fiber backplane instead of copper to enable physical chassis separated by some distance to be configured as one logical router.

Attendees will also see a Teraplex 20 handling 1,200 access control lists without performance degradation, Pluris claims.

For virtual trunking, Pluris will demonstrate its IP Bond capability for aggregating multiple links into a high-speed logical trunk. Pluris will show a virtual 40G bit/sec OC-768 trunk comprising an aggregate of several lower-speed links.

Pluris claims its Teraplex 20 can support IP Bonds composed of up to 1,000 different speed links of varying framing formats. The company says that 1,000 such IP Bonds can be supported across multiple Teraplex chassis.

Competitive link aggregation techniques from Avici Systems configure a virtual trunk that supports only 16 links at two speeds — OC-48 and OC-192, for example — and a single framing format, Pluris says. Avici says it can combine 64 links at four different speeds — from OC-3 to OC-192 — into a virtual trunk.

Pluris' Teraplex 20 will ship this month. Trials are wrapping up at three carriers, including Global Crossing and Deutsche Telekom.

Also moving from terabits to petabits, Hyperchip will unveil its PBR-1280 petabit Multi-protocol Labeling Switching router. This will be the first time Hyperchip has demonstrated the router outside its labs.

Hyperchip will demonstrate the PBR-1280 using Agilent's OC-192 RouterTester test systems. It will enter customer lab tests in September and ship early next year.

— Jim Duffy

Cosine, Unisphere offerings

Cosine will announce the IPSX 9500, the largest in its IP service switch family that supports VPN, firewall and antivirus services.

A fully loaded IPSX 9500 has 654G bit/sec of switching capacity, the company claims, and is suited for a service provider mega point of presence, according to John Metz, an analyst with Sterling Research.

The sheer capacity not only outstrips major competitors, but also exceeds the current need of even the busiest service provider, says Zeus Kerravela, an analyst with The Yankee Group.

To achieve this speed, Cosine has redesigned its line cards, which it calls service generators and which each occupy two slots in the 26-slot IPSX 9500 chassis.

Cosine will also introduce software support for Ethernet-based services such as virtual LANs (VLAN) as well as for McAfee Antivirus software so providers can offer virus-protection services. The new software also supports rate control to give customers more control of bandwidth they buy.

The IPSX 9500 will be available in September and cost $150,000 for the chassis with a single-service generator card.

Unisphere will introduce the ERX 1440, the latest in its edge routing/switching family that purports to support wire speed for all services. ERX 1440 is a 40G-bit/sec switch router designed to enable wire-speed broadband services with quality guarantees.

Unisphere will also introduce ERX software to support intelligent bandwidth management that can, for example, increase or decrease bandwidth to a customer based on policies, such as time of day. It also lets customers order these services as needed.

The software also supports Dynamic Host Configuration Protocol for supporting multiple users with different service profiles at a single site, IP addresses to customer devices, as well as VLAN tagging for added security of customer traffic. The ERX 1440 supports up to 32,000 VLANs per chassis.

The ERX 1440 is scheduled to be available in September with pricing starting at $75,000 for the chassis with the 40G-bit/sec processor card. ◪

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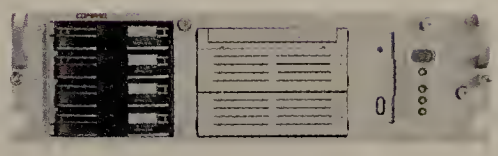

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IBM bolsters WebSphere, targets BEA Systems

Company's Web application server gets Java 2, scalability features.

BY KATHLEEN OHLSON

SOMERS, N.Y. — The latest version of IBM's flagship WebSphere application server delivers enough added features, dependability and convenience to scare market leader BEA Systems, analysts and customers say.

According to Giga Information Group, BEA leads the $1.6 billion application server market with a 35% share, followed by IBM with 30%.

"This is the first release [of WebSphere] that begins to be competitive with BEA," says Mike Gilpin, an analyst at Giga. WebSphere 4.0 now supports the Java 2 Enterprise Edition (J2EE) platform, offers more stability and scalability, and is easier to configure, he says. Earlier versions of WebSphere took about a week to set up, compared with one day to set up and configure BEA's WebLogic, according to customers Gilpin has spoken with.

Eric Yu, CTO at Centerprise Services, says support for J2EE brings more stability to WebSphere, which the financial technology company plans to deploy this summer. Earlier WebSphere versions "were tricky to configure," Yu says. "Even if the bugs were your problem, [WebSphere] didn't really help you much to find" them and the process became time-consuming, adds Matt Forster, software developer at Centerprise.

IBM last month announced that WebSphere would be the backbone of its Web services initiative called Dynamic E-Business. Web services let companies access and interact with business functions over the Internet.

Robert Dutile, senior vice president of enterprise architecture at KeyCorp, wants IBM to build better private UDDI directories.

WebSphere 4.0 supports Simple Object Access Protocol (SOAP), Web Services Description Language (WSDL), Universal Description Discovery and Integration (UDDI), and XML. SOAP exchanges XML-based messages from one business application to another over the Web. UDDI is a universal registry of resources, and WSDL standardizes the way services and their providers are described.

Robert Dutile, senior vice president of enterprise architecture at KeyCorp, lauds IBM's support for Web services in WebSphere, but wants Big Blue to develop private UDDI directories for businesses.

"I hope they make every effort to get [a private UDDI directory] included in a near-term release, but I honestly don't expect one until the end of the year," Dutile says.

A private UDDI directory would let companies have internal Web services behind their firewalls and utilize applications from other divisions. Proposed by IBM, Microsoft and Ariba, UDDI was conceived as a public directory that would let businesses advertise their services, find one another and conduct Web transactions. Businesses, though, are expected to use UDDI with their partners in their own private directories.

Pricing for WebSphere starts at $8,000 for single-server use, whereas BEA charges $10,000 per CPU for its WebLogic server. But Gilpin says the lower price will likely prove inconsequential.

"There's no price sensitivity for application servers," he says. "Application servers are important to business initiatives, and the cost of an application server that fails is so great [customers] are willing to pay for it."

WebSphere 4.0 is expected to ship June 30.

IBM: www.ibm.com/websphere

SMARTS management tool aims to protect service levels

BY DENISE DUBIE

ATLANTA — System Management Arts this week will release software that differs from other fault management tools by identifying the root causes of network problems across multiple managed domains and prioritizing fixes based on service-level agreements.

InCharge Service Assurance Manager, which will be introduced at SuperComm 2001 this week, is designed for large enterprise networks and service provider environments. The software is part of the company's InCharge family of fault management tools. Like other root-cause analysis tools, it's designed to help companies get to the bottom of network problems that are hard to pinpoint because they might affect multiple users, devices or applications.

Once loaded onto a server, the SMARTS software immediately begins an autodiscovery process on the network, using predefined models to seek out alarms, Management Information Base variables, SNMP event data, system log data or data from other network management software, such as Hewlett-Packard's OpenView or Tivoli's NetView. The software achieves automation through a combination of topological insight and information about each managed element, which is organized into network-independent object models, the company says.

SUPERCOMM 2001

InCharge Service Assurance Manager can graphically map out network interdependencies and correlate them so that companies can track whether service delivery levels to end users are being met. A centralized console displays the relationships between connected objects, such as devices, servers, applications and databases. SMARTS claims its software can track such information across individually managed network domains, whereas offerings from the likes of Micromuse and RiverSoft can only track such data within managed domains individually.

Beta version customer Debra Foller, director of operation systems and support for a financial industry extranet provider Radianz, says the company uses SMARTS InCharge technology as the "foundation of its fault management" and plans to use the Service Assurance Manager to perform root-cause analysis across several domains.

"It will let us consolidate 13 different root-cause analysis domains, see the interdependencies and tag a problem across the network," she says. "Today there is no other way to do it other than by a human, and using this saves us time and minimizes the potential for human error."

Founded in 1993, SMARTS has about 100 customers, mostly corporations, but about half of its revenue comes from its service provider accounts. In 1997, the company launched its InCharge suite, which includes the underlying CodeBook Correlation technology. Once installed on a user site, CodeBook matches alarms to its knowledge library, determining the root cause of network problems.

Pricing for InCharge Service Assurance Manager starts at $45,000. The product is scheduled to ship at the end of July.

SMARTS: www.smarts.com

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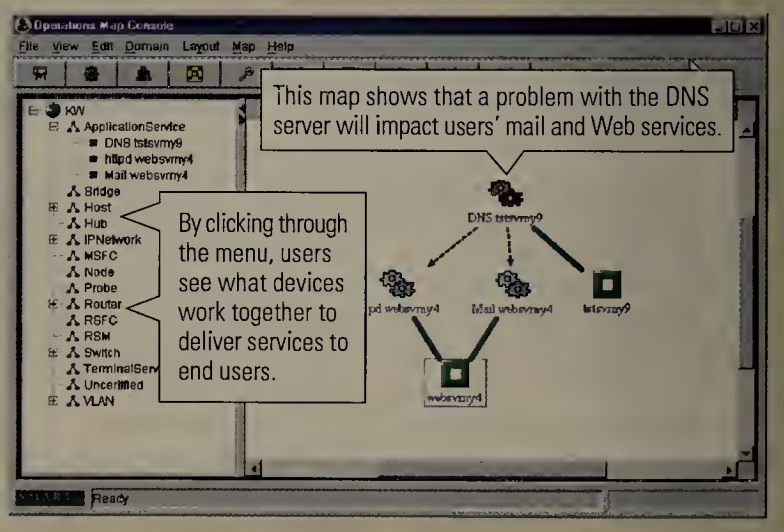

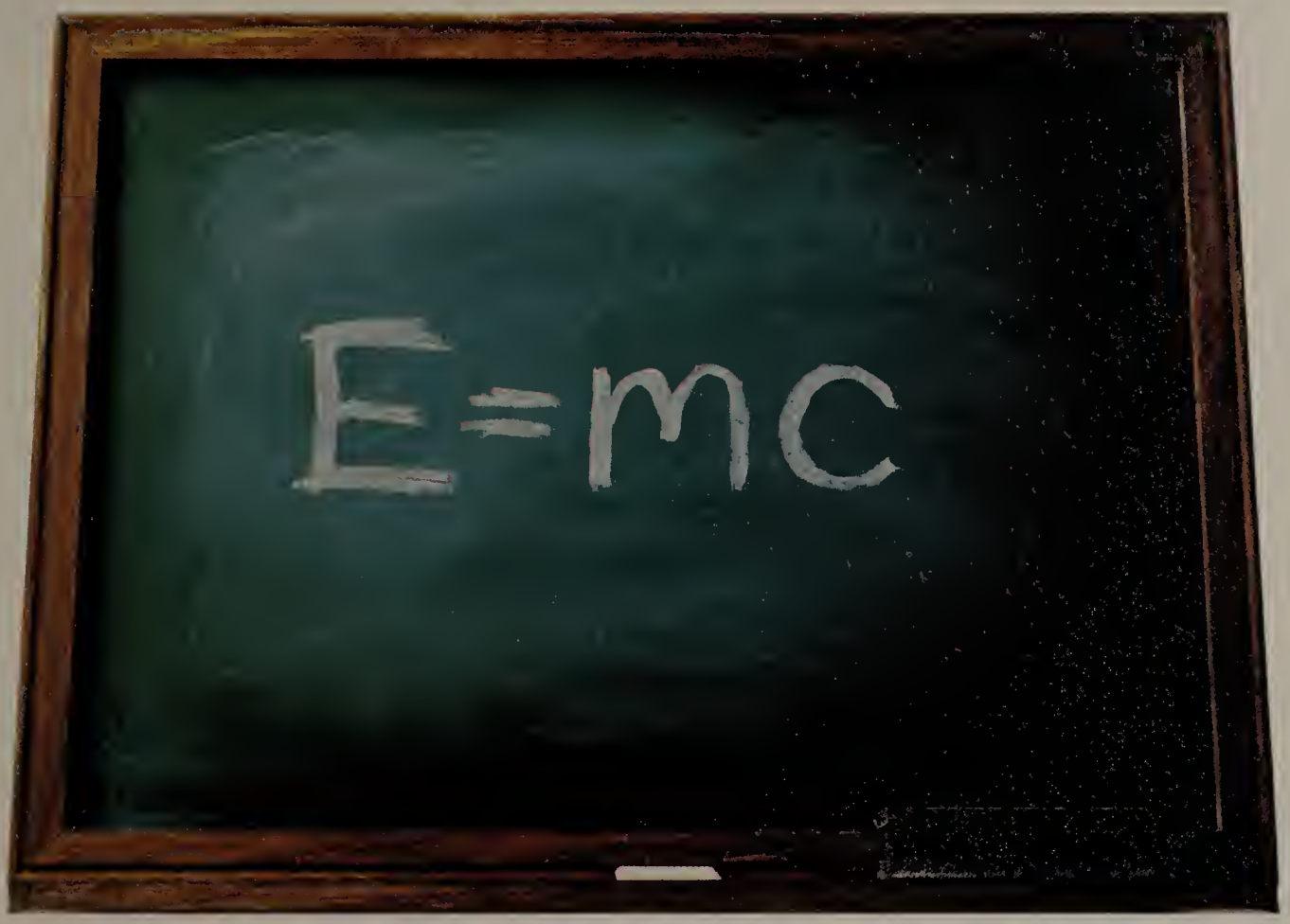

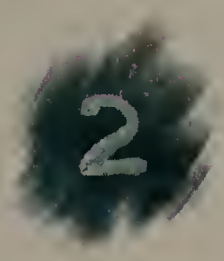

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Management service providers feast on challenges

Four top MSP executives break bread and break down the trials they face in an ever-changing market.

BY DENISE DUBIE

LAS VEGAS — Network World last month treated four top executives from management service providers to a free meal in exchange for some inside information on the state of their nascent market.

The upshot? The roughly year-old market — which centers around the outsourcing of network, systems and applications management — has changed a lot even since we held our first such gathering back in September 2000 (www.nwfusion.com, DocFinder: 4530).

According to our guests — Yash Shah of InteQ, John Igoe of SilverBack Technologies, Michael Manos of Nuclio and Bo Lasater of Totality — the big changes revolve around the fall of the dot-coms, a renewed focus on traditional enterprise customers and the development of new service delivery models.

The night started a bit slow, with Shah and Igoe, co-panelists at an MSP session at NetWorld+Interop earlier that day, arriving first to Nero's at Caesar's Palace in Las Vegas. The two felt comfortable at center stage, joking that they welcomed the opportunity for us to write a huge story on just their respective companies.

PAUL KENNEDY

"The AT&Ts, the WorldComs and the traditional outsourcers will get into this market and be the big players."

John Igoe, president, SilverBack

But that dream died quickly when Manos and Lasater hurried in from a party being held across the street by the MSP Association, an organization that now boasts 104 members. With the wine ordered and bread on the table, the MSP executives dug into the challenges they currently face.

The first issue: the dot-bomb industry. Having come into being at the height of the dot-com hype, many MSPs quickly won customer accounts because the low-entry cost and subscription-payment model appealed to upstart companies.

Unfortunately, many of those start-ups couldn't pay their bills and some MSPs lost their shirts. The smart MSP refocused its sales force on the enterprise customer, Lasater said.

"We filled up on dot-coms early, and they were easy. We didn't realize it at the time, but they were the only people willing to turn over mission-critical parts of their operations to an unproven company," he said. "They had so many other risks they were taking, and they had a pocketful of money. They had to get to market fast and had real management and bandwidth issues.

"Now, we go after more enterprise accounts. It's a very different sale," Lasater said. "Now you've got to sell [return on investment]."

Lasater said having some big name customers among his 20 brick-and-mortar accounts as examples has helped his company win more business. Among the company's high-profile clients is Martha Stewart Living, for which Totality manages the Web infrastructure.

Nuclio's Manos said his company, a subsidiary of Forsythe Technology, never went the dot-com route, but agreed that the death of many dot-coms has changed the face of the MSP market.

He said customers now want to hear how an MSP will make their internal IT processes better and improve how they deal with the "traditional, ugly" network issues.

"We've changed how we sell our service," Manos said. "We don't go in there offering ease of use, ease of management. Now it's more of a focus on quality processes and procedures on the back end."

PAUL KENNEDY

"No, I think there will be experts in the area, and the big boys won't be able to deliver the expertise the pure-play MSP can."

Bo Lasater, vice president of strategy, Totality

With internal IT managers spending so much of their time fixing problems as they arise, InteQ's Shah said it makes sense for MSPs to focus on processes such as change and configuration management that are often ignored.

He claimed InteQ has had a process focus all along, basing its service offerings on the Infrastructure Technology Information Library, a publicly available set of guidelines for "best practice" IT services management. "Now the MSP market is catching up with us," boasted Shah, whose company closed a $57 million second round of venture funding in May, and has about 100 customers.

SilverBack's Igoe said most customers seem interested more in functionality than pure technology, but noted that some companies are interested in buying SilverBack's management technology outright, something he said the company won't be doing. But when Nuclio's Manos pointed out his interest in SilverBack technology products, Igoe joked: "You bring me some of that cash, and I'll bring the technology." His company has collected $22.5 million in two rounds of funding.

At least one other MSP, NOCpulse, sells its technology stand-alone or with services.

But others said selling out-of-the-box technology isn't what's going to differentiate an upstart MSP.

"The 24-7 monitoring, the automation, the efficiency, the one-to-many model that the MSP offers cannot be achieved with out-of-the-box technology," Shah said.

Igoe said that despite the fact that the term MSP is "a moniker for an old idea — outsourcing," one challenge that remains for MSPs is convincing IT departments to give up control. However, the education process has progressed in the past year, he said.

"Last year, customers were kicking the tires, taking us for a test drive. Now, they come into a meeting and say 'OK, what are you going to do for me and how?'" Igoe said.

SilverBack's 30 customers get their services much like one would purchase cable TV, Igoe said. They can start with a base package, see if they like it and add on simply by making a phone call and paying a bit more per month. He claimed that the way SilverBack delivers technology will be how it's done by everyone within the next 10 years.

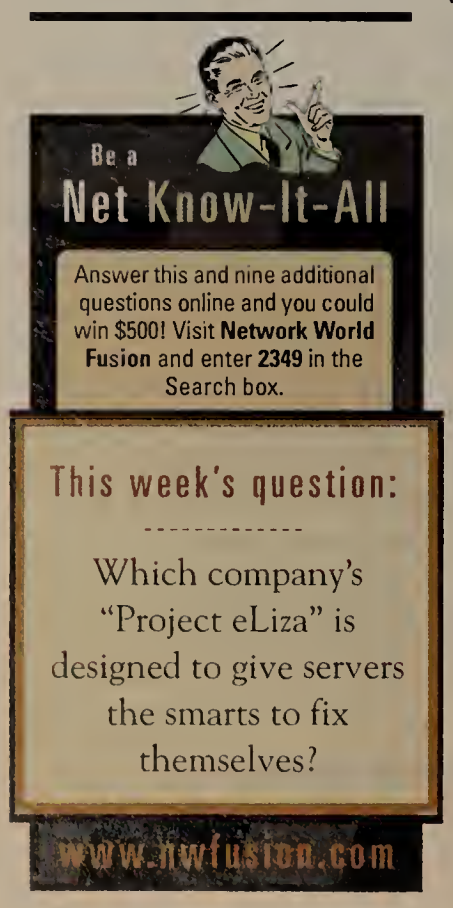
Igoe expects his major competition to come not necessarily from his dinner mates. "The AT&Ts, the WorldComs and the traditional outsourcers will get into this market and be the big players," he said.

Totality's Lasater strongly disagreed.

"No, I think there will be experts in the area, and the big boys won't be able to deliver the expertise the pure-play MSP can," said Lasater, whose company has raised $122 million in funding.

Chiming in as a voice of economical reason, Manos added that most emerging markets are narrowed by the natural laws of competition. Although there was some disagreement from the group in terms of how small the market will get, all agreed it will be survival of the fittest, meaning that the number of pure MSPs will certainly fall well below 100 in coming years.

But naturally, these diners said InteQ, SilverBack, Nuclio and Totality will still be around the next time *Network World* offers them a free meal. ◪



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Tally debuts Web-based asset-mgmt. service

BY JOHN FONTANA

LEBANON, N.H. — With Microsoft's new licensing model looming on the horizon and software license compliance becoming a big issue in a tight economy, some IT executives are busy collecting an inventory of their software, as well as the hardware it's installed on.

For those without tools to automate the task, Tally Systems this week is launching WebCensus, a subscription-based, asset-management service. The service will provide IT executives with a list of all software installed on each desktop and server PC in their company, from Windows 2000 to the smallest freeware utility. The service also gives an inventory of the PC hardware right down to the type of processor, CPU, make and model.

"We wanted to make sure that we were in step with our licensing to see where we are as far as upgrading," says Kevin Scott, manager of technical services for Acsys, a professional staffing company. Scott says he is using the data to plan for operating system and application upgrades to 600 machines and to ensure the company is running only licensed software. He plans to use the service to support annual audits.

WebCensus is based on Tally's TS.Census, an asset-management system for deployment within a company, but it lacks some of that product's more sophisticated features such as tracking assets through their life cycles.

Software inventory is on the minds of many IT executives who run Microsoft products because the company is changing its licensing requirements starting Oct. 1. If users want to opt in to the new licensing programs, they must be running current versions of software.

Inventory is also important as other vendors begin to crack down on software piracy and user populations become more distributed.

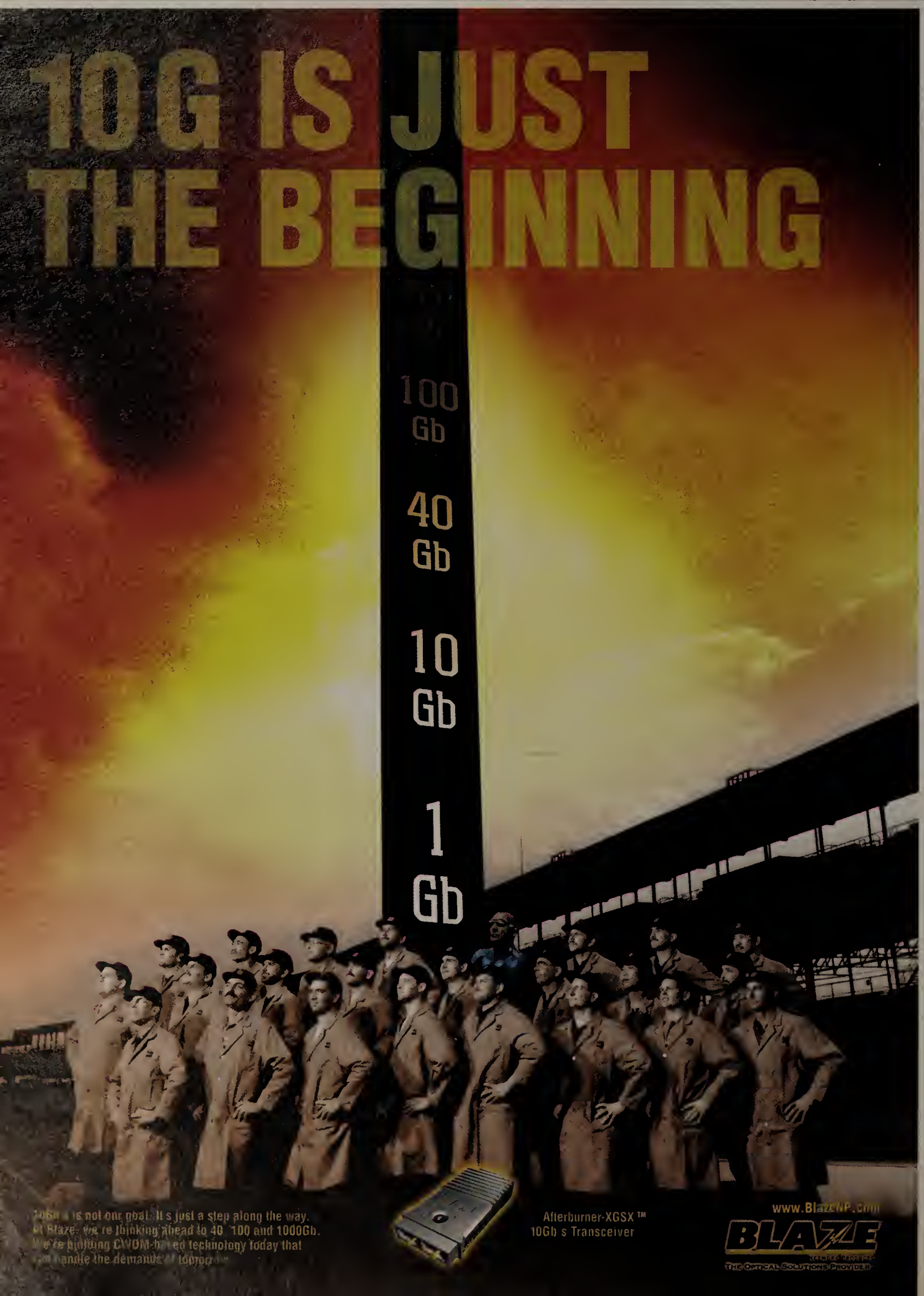
Tally's service competes with Web-based offerings from AssetMetrix and Easyvista.com.

IT managers collect inventory data by sending users an e-mail with a URL to the WebCensus Web site. When users click on the URL, an agent is installed onto the PC, performs an inventory and sends it to a database on the WebCensus site before uninstalling itself. All data is encrypted during transport. IT administrators then log on to the WebCensus site and run reports against the database. The reports can be used to determine such things as how many copies of Office are deployed and which versions.

Observers say the necessity for end users to initiate the inventory collection is a weak link in the process. "What if no one clicks on the URL in the e-mail? It's a significant issue," says Fred Broussard, an analyst with market research firm IDC. WebCensus provides tracking to log who has scanned their machines, but IT has no control over executing the inventory agent. Overall, Broussard says, "It's a nice utility for IT managers that are mobile and need access to this data in the field. These tools will be helpful as enterprises migrate to new systems like Windows 2000 and Office XP."

WebCensus is $3 per PC for a month of service. Three months of service is $7 per PC, and a year contract is $15 per PC.

Tally: www.webcensus.net



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Briefs

Bus-Tech is rolling out an IP storage appliance this week that lets users access storage data over their Gigabit Ethernet nets. Called CauseWay, the appliance connects a Linux server to the Gigabit Ethernet network for attachment to the SCSI or Fibre Channel array. The server contains an IP storage software driver, which performs disk-to-disk file copies between the server and the Fibre Channel port on the CauseWay appliance. In the future, Bus-Tech will support Enterprise Systems Connection and FICON for IBM S/390 mainframe attachment. CauseWay will ship in the fourth quarter. Pricing isn't set.

Bus-Tech: www.bustech.com

IBM recently beefed up its **eServer** product line, introducing a new entry-level thin server and a series of caching appliances intended to speed Internet content delivery. IBM's xSeries 300 is 1U (1.75 inches) thick and supports two fixed hard drives and up to two Intel processors. The x300 can run Windows 2000 Server/Advanced Server, Windows NT and Linux. The x300 fits into IBM's Project eLiza, an initiative aimed at creating self-managing servers. The x300 features IBM's Director and Software Rejuvenation tools for predicting application and operating system failures and remotely managing servers. The x300 costs $1,500. IBM also introduced a family of Internet caching appliances. The appliances incorporate Volera's Excelerator 2.0 caching engine, and support mediastreaming and content-filtering applications. Targeted at the corporate market, the caching appliances are available in six models, ranging from a 1U thin-server workgroup model that can handle 5,000 requests per second to a 3U rack model with the capacity for 15,000 request/sec.

IBM: www.ibm.com

Bug bites Windows Terminal Services

BY JOHN FONTANA

An independent tester says he has uncovered a bug that causes a total collapse of Windows Terminal Services running on Windows 2000 at specific processor speeds.

But Microsoft is trying to debunk the claim that the problem is with Win 2000.

The bug appears when Terminal Services runs on a dual-processor computer with 933-MHz or 1-GHz clock speeds. Other clock speeds do not trigger the bug. Terminal Services is built into Win 2000 to support multiuser thin-client computing.

The problem is linked to a process that executes in the kernel of Win 2000 known as Win32K.sys, which is a kernel-mode function that governs the drawing of graphics on a computer screen.

"The failure is catastrophic," says Randy Kennedy, who as director of research for Competitive Systems Analysis uncovered the flaw. "It will blow everyone off the server." It is a timing issue in Win 2000, says Kennedy, who recreated the bug many times during his testing.

The issue could be significant for IT executives who support multiple desktops through Terminal Services.

"We have 80% of our organization running on Citrix," says Jeff Cichocki, programmer analyst for WG&R Furniture, which runs Office, Outlook, Internet Explorer and homegrown applications on Terminal Server. "This is a large concern."

Microsoft says it is investigating the issue but would not say if it is a problem with Win 2000, the hardware or a driver. Microsoft says it was not able to recreate the bug, but company officials say it may be only evident in Kennedy's test lab. The bug has not been reported in any corporate deployments.

"Win32k.sys looks to be the culprit

See **Terminal**, page 30

Crash scenarios

An independent tester says he has uncovered a bug that causes Windows 2000 Terminal Services to crash at certain processor speeds. Here are two possible configurations that can lead to the crash.

	Configuration 1	Configuration 2
Processor	933-MHz dual-processor Pentium III	1-GHz dual-processor Pentium III
Server software	Terminal Services/Win 2000	Terminal Services/Win 2000 Citrix MetaFrame 1.8 or XP server
Clients	Remote Desktop Protocol	Citrix ICA protocol
Users	10–15	10–15

SOURCE: COMPETITIVE SYSTEMS ANALYSIS

LeftHand device unites storage networks

BY DENI CONNOR

BOULDER, COLO. — LeftHand Networks is continuing the traditions of its namesake, Chief Niwot (Lefthand) of the Arapaho, who served as a negotiator and English interpreter for settlers drawn to Colorado in 1859 by gold strikes in Boulder Canyon. The company is making a hardware device that ties together storage-area networks and network-attached storage into a single, harmonious network.

LeftHand's Network Unified Storage (NUS) product is a hybrid device that blends the file-oriented data common to NAS devices and the block-oriented database, data warehousing or transaction data residing on SANs. The idea is that if one device on one system fails or becomes overloaded, other devices can take over. Storage can be dynamically reassigned from server to server.

Even though the company's product connects to the network with an Ethernet connection, it differs from NAS products. In a traditional NAS, a CPU connects to the network via an Ethernet adapter. Several controllers connect to the CPU and then to multiple disk drives. Each request for data flows through the single CPU in a stepwise fashion, causing bottlenecks and network congestion, LeftHand officials say.

In LeftHand's configuration, four inexpensive, hot-swappable Integrated Drive Electronics (IDE) or UltraATA disk drives connect to a single CPU to create a total capacity of 480G bytes per module. Modules, consisting of the CPU and drives, can be distributed anywhere on the network, even divided across geographically distant networks. Each module can be clustered with the others for fault tolerance. The disk capacity of each drive can also be joined into a common pool for sharing across the network or be used individually by the servers assigned to the device. Data can be mirrored or striped between drives and modules for fault tolerance, data availability or disaster recovery.

"The company's product supports either file or block data on each module,

See **LeftHand**, page 28

PROFILE: LEFTHAND NETWORKS

Location:	Boulder, Colo.
Product:	Hybrid storage device for SAN/NAS; ships Q3 2001.
Management:	Bill Chambers, CEO; John Spiers, CTO and founder; Dave DuPont, vice president of marketing and business development.
Financing:	Boulder Networks, Sequel Venture Partners, Vista Ventures; totaling $10 million.
Employees:	27
Fun fact:	Company is in the Lefthand Canyon, named after American Indian Chief Niwot ("left hand" in Arapaho language).

Firepad packages graphics for Palm OS clients

BY JOHN COX

MOUNTAIN VIEW, CALIF. — Incorporating complex corporate graphics data, such as maps, blueprints, medical images and technical diagrams, into Palm OS applications has been made easier with the latest release of mobile software from Firepad.

Version 2.0 of Firepad's Mobile Application Platform now lets end users enter data, capture bar code information and signatures, and send this data back to corporate applications. The features will let handheld users launch business processes such as billing and order fulfillment, and query back-end servers more interactively.

Other changes include:

- Support for Secure Sockets Layer to aid in encrypting data.
- Support for various add-on memory card formats, including MemoryStick and Secure Digital.

The Firepad software has a client program that runs on the Palm, as well as a server program and PC program (see graphic). On a server, FirePublisher uses the company's patent-pending technology to strip graphics out of HTML pages, encode and compress text and graphics, and transmit these to the PC application, called FireConverter, or wirelessly to a Palm OS client application called FireViewer. The graphics are sent as links, and users can click on them to download the compact graphics file.

FireConverter works with the Palm cradle and HotSync software to move data to the handheld. Once the graphics arrive on the Palm device, FireViewer is designed to quickly unpack, display and manipulate them. Users can pan across the image, zoom out for a complete, although small, overall view, and then tapping the screen with the Palm's metal stylus, zoom in for more detail. All this is done extremely fast, according to William Mitchell, CEO of Firepad.

Although many other software programs are available to convert HTML into Palm OS or other formats, Firepad is focused on high-resolution graphics, says Jennifer DeMarzio, industry analyst for mobile and wireless at consultancy Summit Strategies.

"There's been a lot of 'dumbing down' of graphics for handhelds — usually by substituting very low-resolution pictures. There's less detail, so less data has to be transmitted over low-bandwidth links," she says.

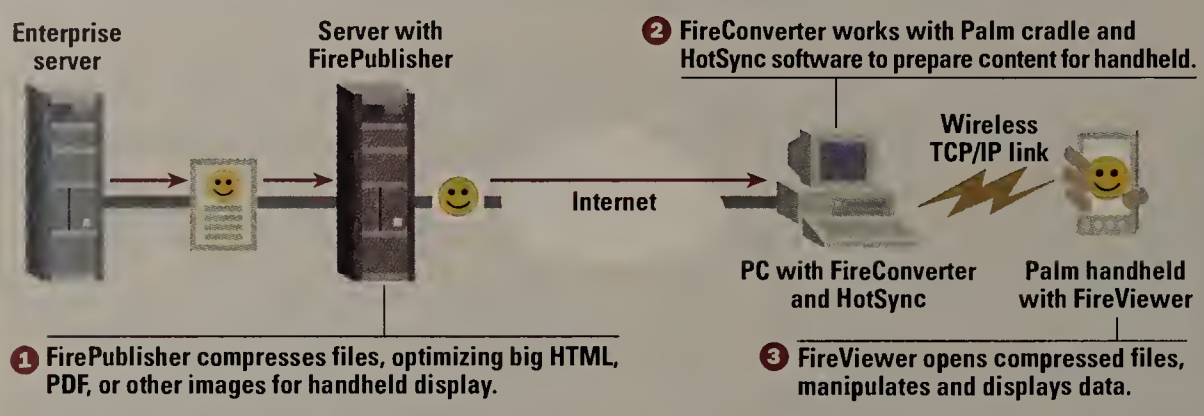
Mitchell says the software can store a 400-by-400-pixel image in about 15K of memory. Even with a Palm OS handheld limited to about 8M bytes of RAM, "you can easily put hundreds of images of this size on a Palm," he says. Recently, add-in memory cards, based on various standards, have appeared on the market, and can boost memory capacity to 128M bytes.

Firepad Mobile Application Platform 2.0 is available now for Palm OS, with a version for Microsoft PocketPC software due out by year-end. The server runs on Windows NT 4.0 and 2000; the clients on Palm OS 3.0 and higher, Win 98, 2000 and NT 4.0. Pricing starts at $3,000 for a 10-user license.

Firepad: www.firepad.com

Taming big images

Firepad software optimizes large files for fast viewing and manipulation on handhelds. Version 2.0 supports barcode scanning and signature capture for two-way data transfer.



Intel box exploits IP to extend PBX functionality

BY PHIL HOCHMUTH

PARSIPPANY, N.J. — Intel this month will release an IP telephony product that could put the power of a central-site PBX into a small branch office or a telecommuter's den.

Intel's iPOD could help companies lower their phone costs by connecting small branch-office and home-office workers to a centralized PBX with voice over IP. Instead of deploying small PBXs or key systems in remote sites, net managers could use the product to provide voice connectivity over a remote site's WAN link.

IPOD — developed by Dialogic, Intel's computer telephony subsidiary — is a small, rack-mountable device that connects to a Nortel Networks Meridian or Avaya Definity PBX via a standard RJ-11 phone wire. On the other end of iPOD is a Category 5 Ethernet jack that is used to bridge phone calls to an IP network.

One iPOD can be used to connect up to eight IP phones to a PBX by mapping each phone's IP address to an extension on the PBX. This is done by assigning static IP addresses to specific phones or by assigning addresses on the fly through the device's internal Dynamic Host Configuration Protocol server. By mapping IP addresses to phone extensions, any H.323-compliant IP phone (from makers such as Cisco, PingTel and Siemens) can become a regular PBX phone extension, whether the phone is sitting on an internal LAN or in a remote location and connected by an IP WAN link, such as a T-1 or ISDN line.

Once iPOD is configured and mapped to IP addresses on the PBX side of the network, deployment of phones is simple, says Vince Connors, product manager for iPOD.

"IT managers could just send IP phones to a remote site, tell employees there to plug them in, and they'd be off and running," Connors says.

Workers at a remote site can use all features of the remote PBX, such as in-house extension dialing, hold, call forwarding, conferencing and voicemail access.

IPOD was previously available to PBX vendors (such as Mitel) as part of an offer for IP-enabling a legacy PBX. The previous version of the product could only communicate through proprietary communications protocols used by the legacy PBX vendors. The new version of iPOD that will be sold to end users communicates via the H.323 voice-over-IP protocol, which is becoming a standard protocol in IP telephony.

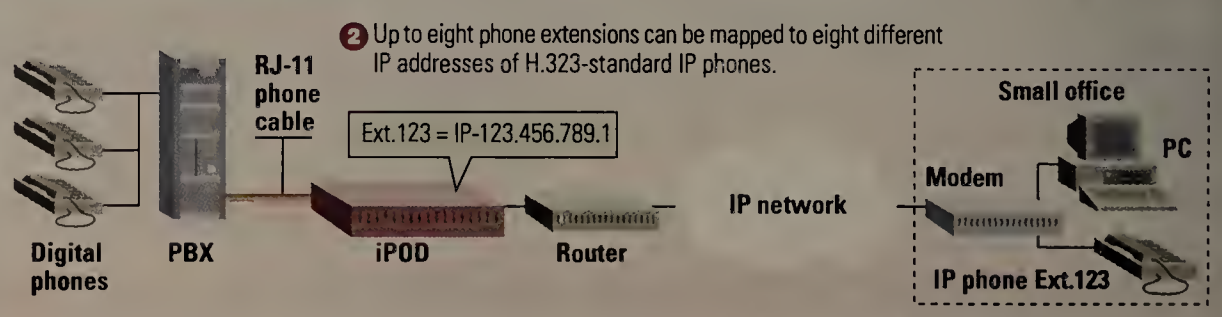
IPOD will compete with products such as the PBXgateway II from MCK Communications, which can connect up to 24 PBX extensions in a single box, but at $9,000, costs three times as much as iPOD.

The H.323-compatible iPOD will be available this month and cost around $2,700.

Intel: www.intel.com

PBX extension

Intel's iPOD device can be used to map phone extensions from a PBX to remote IP phones.



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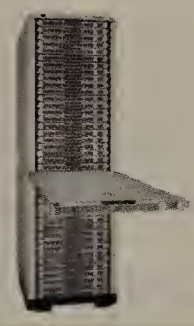

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Funk extends wireless security software

BY TIM GREENE

CAMBRIDGE, MASS. — Funk will announce this week an upgrade to its Steel-Belted RADIUS software that will expand its use to wireless devices while letting corporations keep their current Remote Authentication Dial-In User Service security databases intact.

The software incorporates a new standard for securing wireless LANs using the same Funk RADIUS server that corporations may already use to authenticate and authorize users, and track their activity on a network when they connect via direct-dial or VPN.

Funk's wireless upgrade, to be unveiled at SuperComm 2001, will initially support standards-compliant wireless gear as well as Cisco wireless equipment, which uses some proprietary protocols to secure wireless devices. Funk says it plans to work toward interoperability with other vendors' equipment whose security varies from the standard.

RADIUS has been specified as the technology to secure wireless LANs under the set of IEEE standards known as 802.1x. Rather than add intelligence to the LAN-connected wireless receiver, called an access point, the standard calls for the access point to connect to a RADIUS server and its database of authorized users.

For corporations that already use Steel-Belted RADIUS and are considering use of wireless LAN technology, this is an efficient way to set up wireless security, says Jason Smolek, a research analyst for market research firm IDC.

But for companies that already have wireless LAN gear from vendors such as Symbol and Proxim that use other security schemes, it presents choices. They can either stick with the nonstandard security, wait for Funk to support their vendor or swap out for equipment that supports the standard, Smolek says.

Wireless PCs contact the access point, which contacts the RADIUS server located on the LAN to make sure the machine with that media access control address is authorized to establish a link to the LAN. The server can accept, reject or further challenge the wireless device.

If it accepts, the RADIUS server sends data to the access point so it can configure a secure connection with the wireless PC. This data from the RADIUS server can include such things as security keys, assigning an IP address to the wireless device or establishing a time limit on the session.

Under the standard, the access point and RADIUS server use extensible authorization protocol (EAP) to communicate. EAP is a point-to-point protocol designed to support multiple authentication methods.

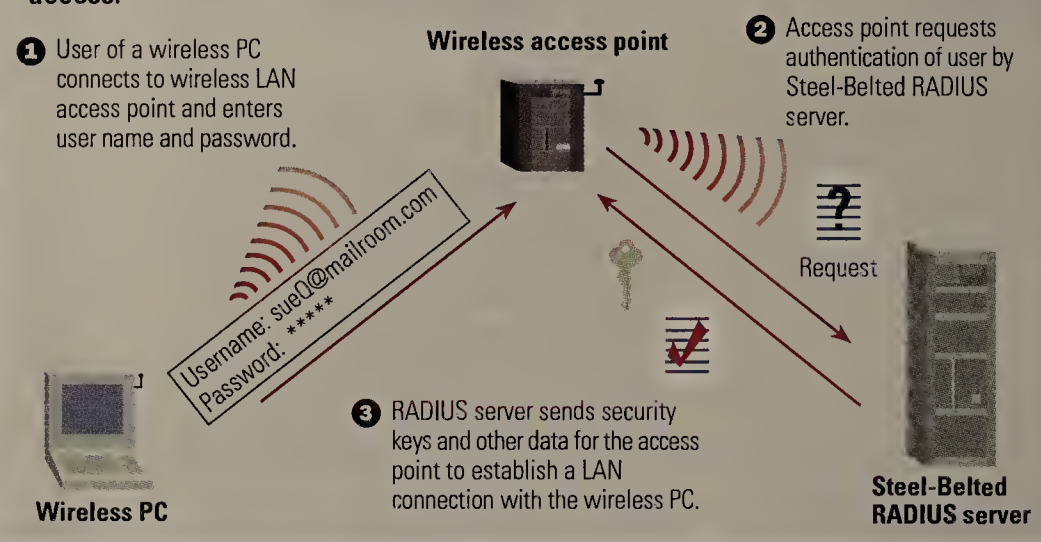
Smolek says Funk's wireless upgrade faces competition from vendors such as Microsoft and Blue Socket that support wireless security via other methods. Cisco uses a variant of EAP called lightweight EAP, which Steel-Belted RADIUS servers will support so servers can talk to the Cisco access points. Steel-Belted RADIUS supports Solaris, Windows 2000 and Windows NT servers.

The software is being beta-tested in July and will be released at the end of August. Customers with maintenance subscriptions get the upgrade free; others pay $1,500.

Funk: www.funk.com

Funk supports wireless LAN authentication

Funk's Steel-Belted RADIUS software can now be used to authorize wireless LAN access.



Once a high flyer, PictureTel fades away

BY JASON MESERVE

What happens when a market-leading company ignores customers' needs and fails to launch a viable product in more than a year? Just ask PictureTel.

The Andover, Mass., company was the trailblazer in the videoconferencing industry until a few years ago, when it failed to adapt from big, expensive room-based systems to smaller, less-expensive group-conferencing units. Polycom, which entered the videoconferencing arena in 1997, sprung to the top of the leader board with its group videoconferencing units that cost about $6,000, compared with PictureTel's $20,000-plus conference room models.

Just over a week ago, Polycom said it would spend $362 million in cash and stock to purchase PictureTel.

PictureTel opened the group video market in 1996 with the introduction of its $7,000 SwiftSite set-top unit. But its successor, SwiftSite II, was delayed, and once it shipped, the product was so riddled with bugs that the company issued a recall.

"SwiftSite II sullied PictureTel's reputation and was a disaster," says Andrew Davis, principal analyst at Wainhouse Research. "Polycom stepped up with its ViewStation line and succeeding products, which all worked well, were cheaper and gave the company a good reputation."

Davis says PictureTel's management team didn't recognize the importance of the SwiftSite product line and shrugged off the disaster while Polycom continued to grow. Since 1997, Polycom has grown at a 257% annual rate, while PictureTel has declined by an average 19.3% annually. Polycom recorded $49.3 million in profit on revenue of $337.1 million last year while PictureTel lost $107 million on revenue of $245.1 million for the same fiscal year.

"Polycom surpassed PictureTel in revenue in 2000, but they passed them in units shipped, long before that," Davis says.

In the first quarter of 2001, Polycom shipped 54.1% of the group video units sold; PictureTel came in second with 14.7%, according to Wainhouse Research. After the buy, the resulting company will own nearly two-thirds of the group video market and one-third of the smaller personal video market.

PictureTel does offer something to its new owner: Its iPower line of PC-based group video systems. In the conferencing market, there is a battle between all-in-one appliance systems that Polycom offers, and more open-standard systems such as the iPower systems, which come with a PC attached, offered by PictureTel. Now Polycom can offer both to customers. The company also offers servers and devices for routing conferences through a network, thanks to last year's Accord Networks acquisition.

Another benefit for Polycom is that a couple of the original PictureTel audio and video engineers currently work for Polycom. Now reunited with their former company, they can take advantage of some of the patents they left behind, such as the 14KHz audio coder/decoder, considered the best in the industry by many, used in the iPower product line.

Christine Perey of Perey Research and Consulting says the acquisition could result in more mergers as the smaller companies try to compete. ◪

LeftHand,
continued from page 25

not both concurrently," says Dan Tanner, an Aberdeen Group analyst. "They can go a long way toward eliminating CPU bottlenecks, while virtualizing the network data."

The LeftHand approach uses the increasing speed of Gigabit Ethernet and the clustering and parallel storage features of supercomputing to make a device that LeftHand CTO John Spiers says is easy-to-manage and "doesn't cost an arm and a leg."

Each module has two connections — a fiber-optic or copper Gigabit Ethernet link for connecting to the network and a 10/100M-bit/sec Ethernet link for management or backing up data. The NUS will run Windows NT and 2000, Linux and Unix.

LeftHand says its competitors are EMC and Network Appliance, and it contends instead with vendors that make NAS/SAN convergence devices, IP storage devices and virtualization software.

LeftHand's NUS device will ship in September, starting at less than $15,000.

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Wired on Windows . Dave Kearns

JOUSTING WITH THE OPEN SOURCE MOVEMENT

"The [General Public License] poses a threat to the intellectual property of any organization making use of it."

— Craig Mundie,
Microsoft vice president

By now you're probably aware of the firestorm unleashed by Microsoft Vice President Craig Mundie. He recently castigated the Open source movement and the GNU General Public License as basically un-American while touting Microsoft's new "Shared Source" initiative, by which Redmond would let certain software partners access source code for viewing, but not modifying. Everyone, it seems, was out for Mundie's head.

In response, the high priests of Open source (Richard Stallman, Tim O'Reilly, Eric Raymond, Linus Torvalds et al.) agreed with an open letter written by sometime writer, programmer and gadfly Bruce Perens (http://perens.com/Articles/StandTogether.html) castigating Mundie and Microsoft.

According to Perens, "The success of the Open source model arises from copyright holders relaxing their control." That's like saying someone who's chugged a quart of vodka is "relaxed." Open source requires the copyright holder to relinquish all control — to give up any rights to the intellectual property.

This supposedly leads to "free" software. But as our intrepid band of software liberationists tell us, "Free refers to liberty, not price." (I have this image of applications locked up in tiny cages with Stallman leading a midnight raid to liberate the code.)

Guys, software isn't people. Software doesn't need, nor enjoy, liberty. People need freedom.

When it comes to software, people — especially business people, but also home users — want applications that work.

Open source is fine for geeks. I've been part of the Open source movement myself (in my younger days). I went through an epiphany similar to the one Eric Raymond describes in *The Cathedral and The Bazaar,* but the geeks-only phase of computing is gone. Long gone and gone forever.

The Open source movement is, essentially, communistic (small "c") at heart, and that sets it opposite the traditional American entrepreneurial spirit. Perhaps "un-American" is too strong, but perhaps it isn't.

Kearns, a former network administrator, is a freelance writer and consultant in Austin, Texas. He can be reached at wired@vquill.com.

Tip of The Week

If you've never read Eric Raymond's *The Cathedral and The Bazaar,* you should. It's online at hwww.tuxedo.org/~esr/writings/cathedral-bazaar/ and is the definitive writing on the open source software movement. I don't agree with its conclusions (we'll come to that in a future column), but it is well-written and deserves to be read.

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Terminal,
continued from page 25

but it can be impacted by bad hardware or a bad driver," says Mark Aggar, product manager for Microsoft Terminal Services technologies. "I think that it is pure conjecture to say the cause of the problem is Windows 2000."

But Aggar says Microsoft has not excluded the operating system as the source. "We don't have any results back, but the signs point to a hardware problem," he says. Kennedy says the problem is most definitely in the software and that he used standard hardware components on his test machine, including an Intel i840 chipset.

The bug kills Terminal Services at 933 MHz when it is run using Microsoft's Remote Desktop Protocol, according to Kennedy.

"The bug also crashes Citrix MetaFrame 1.8 and XP application server and ICA clients running on Terminal Services at 1 GHz," he says. He adds that it takes only 10 to 15 users to trigger the bug.

Kennedy says he found the flaw while running Microsoft Office through Win 2000 Terminal Services on a dual-processor Pentium III server as part of an evaluation of Terminal Services' scalability.

"Win32k.sys is so optimized for Windows 2000 it's hard to track the problem and debug," Kennedy says. "But this is the kind of bug that, if not corrected at the core, could rear its head over and over again."

Terminal Services is used to centrally run applications such as Office for low-powered or thin-client desktops. The application logic runs on the server, and the screen images are passed to desktops.

Controversy around Win32K.sys dates back to 1996, when it was added into the kernel of Windows NT 4.0 to improve the performance of desktop applications. On a multiuser server application, the operating system must virtually replicate Win32k.sys so each client connection thinks it has its own copy, according to Mark Russinovich, co-founder of SysInternals, a Web site that offers Windows monitoring utilities.

He says the Terminal Server issue likely arises from the fact that any kernel component running in a multiprocessor environment has to handle synchronization so processors can work in harmony.

"There is a synchronization problem somewhere," he says. "This is not a fatal flaw in the [operating system]; it is an implementation bug." ◪

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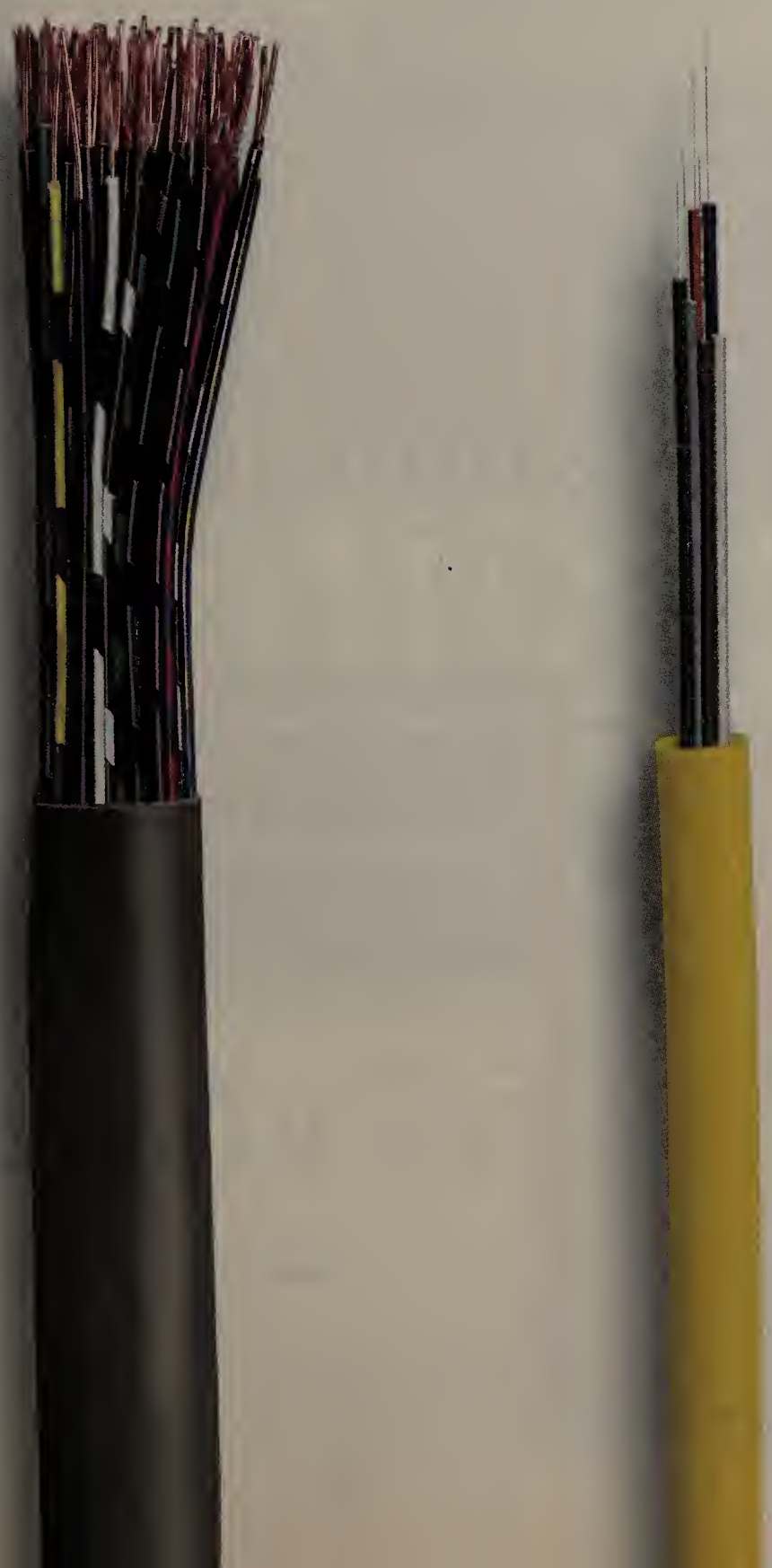

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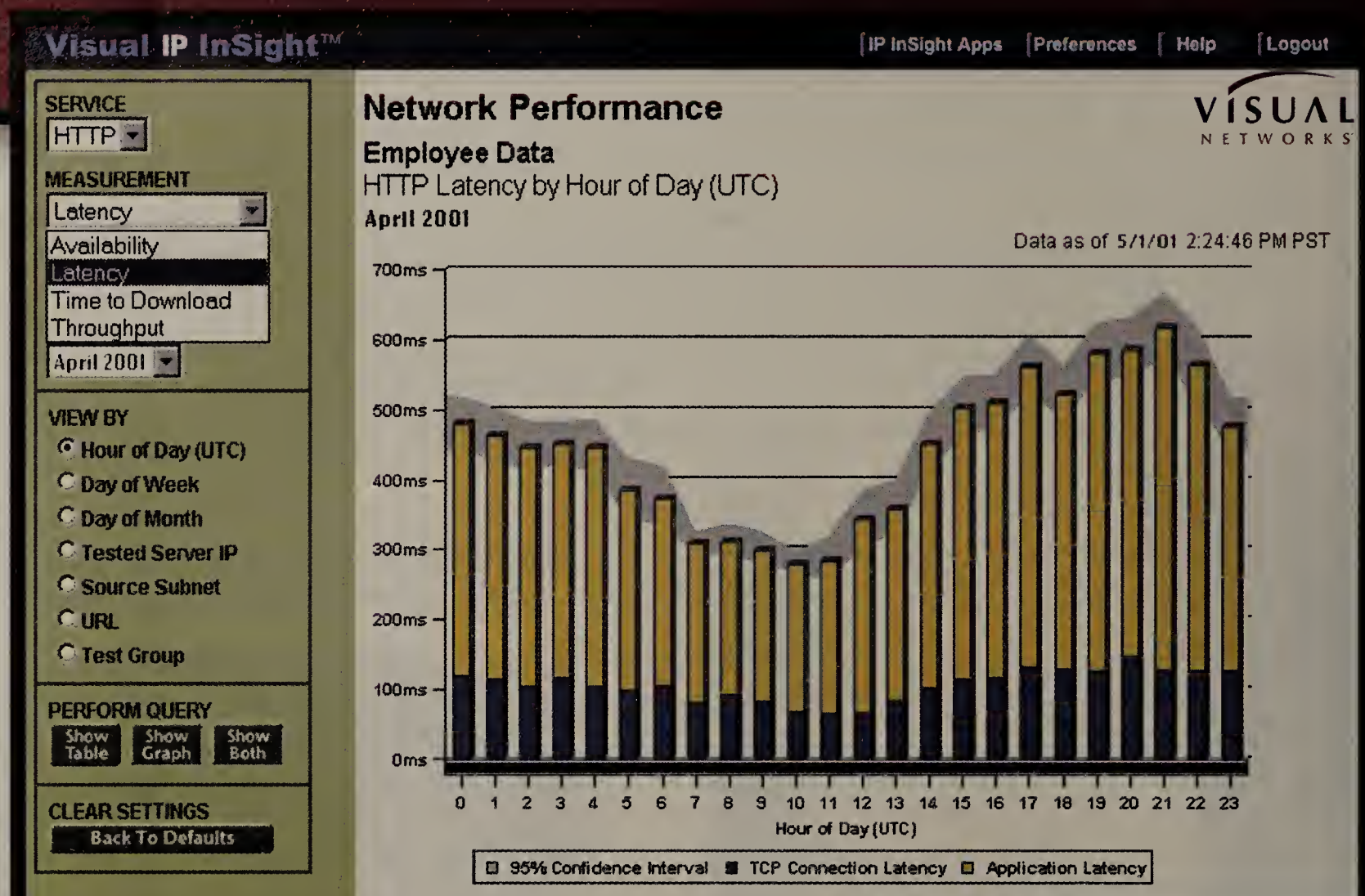

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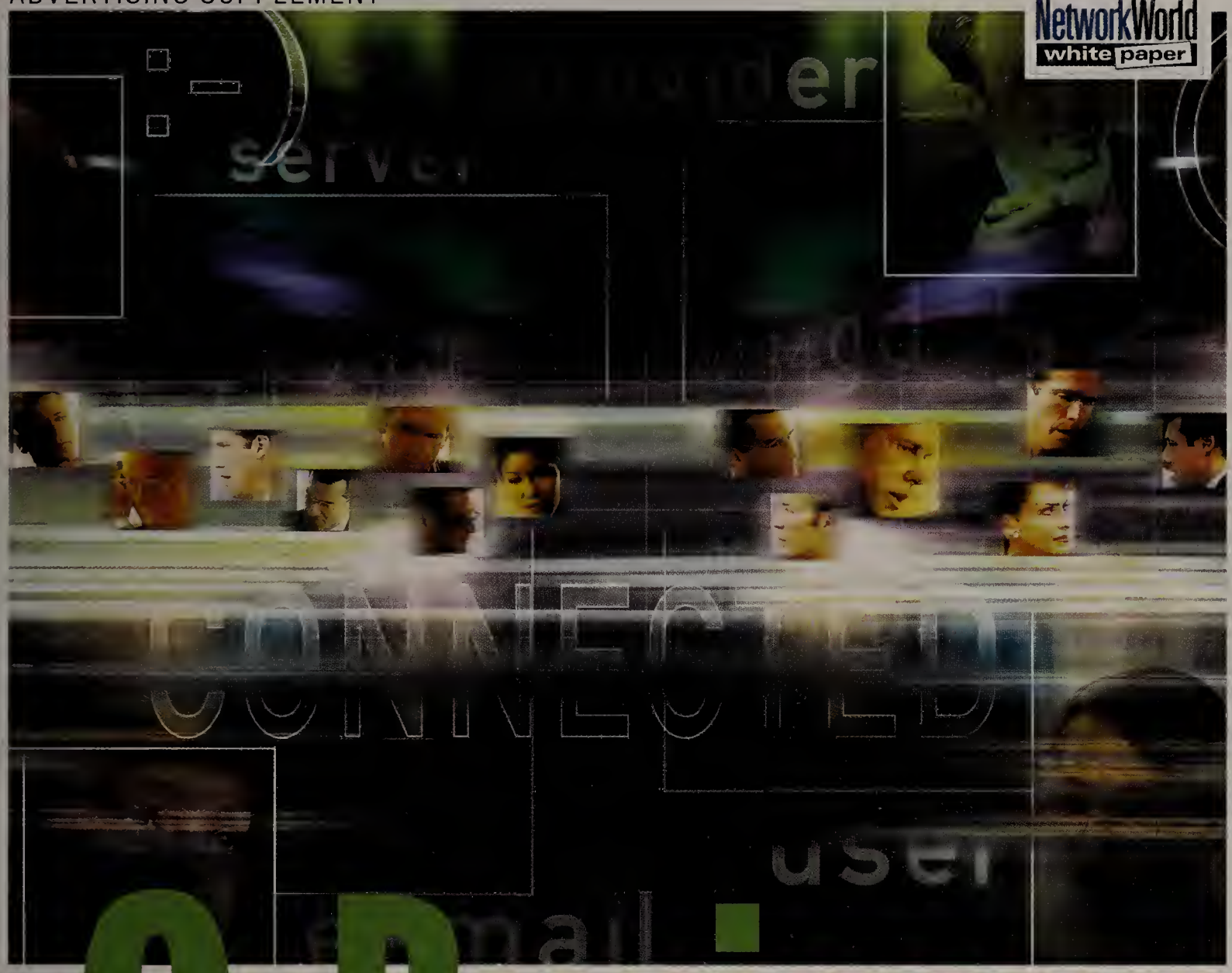

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COMMUNICATIONS + CONTENT

BY LAUREN GIBBONS PAUL

Full Service @ Provider

The XSP challenge: to find sustainable business models while meeting customers' ever-increasing demands

These are times of great challenge and even greater opportunity for service providers. Whether you're an application services provider (ASP), a managed services provider (MSP), an Internet services provider (ISP), or a security services provider (SSP), customers are demanding more every day—high bandwidth on demand, a strong and flexible mix of services, and rapid provisioning. Managing these requirements is challenging enough, but now the market is insisting on profitability. Those heady days of acquiring new customers at all costs appear to be over.

As the industry has paused for a break and demand has cooled somewhat, service providers of all types (generally called XSPs) are having to work harder than ever. Yet within this situation is the chance for service providers to strengthen themselves by differentiating their offerings from the competition.

This differentiation is crucial, because customers can be unforgiving. Businesses of all sizes have an insatiable appetite for lightning-fast service. If you can't respond quickly enough, they'll just go to the next provider on the block. "No one's willing to wait six months for a DS3 connection anymore," says Tripp Keber, senior vice president of sales and marketing for eLINK Communications Inc., a Bethesda, Md., broadband provider. And it's no longer sufficient to dump a communications link on a customer and wish him a good day. "We'll stand next to your desktop and make sure it's functioning correctly," adds Keber.

Even though companies are using more and more XSPs to run different aspects of their technical operations, executives don't want to have to manage all the different providers and services by themselves. They just want everything to work. Pointing your finger at the other guy doesn't cut it anymore.

THEY NEED IT WHEN THEY NEED IT

Most customers don't want to pay for super-high-bandwidth Internet access 24 hours a day, seven days a week. And except for those with bandwidth-hogging applications such as streaming video or data vaulting, it's not necessary. What they do want is the freedom to scale up to any level of system as needed. "[Customers] want to be able to change, expand, scale. They want to stay near the cutting edge with the services they're being provided," says Gabe Cole, president and CEO at ixpanse Inc., a Boston firm that provides interconnection services to XSPs.

Reliability is just as important as scalability. "For our customers, it's not about who can provide the biggest pipe. A lot of our customers don't need 10 megs of connectivity. They may need only 1 meg, but they want it to be very reliable," says Doug Morgan, vice president of national initiatives at Allied Riser Communications (ARC), a Dallas-based integrated service provider. Customers also want the provider to monitor their usage and proactively advise them on when to upgrade.

Customers are looking for a lot of advice these days. As corporate IT staffs shrink, everyone is trying to do more with fewer resources. Many XSPs today find their customers are not necessarily IT people. "We typically interact with a sponsor from the business side, not IT," says Joel Whitman, vice president of Internet strategy for Genuity Inc., an MSP in Woburn, Mass.

Ever since the ASP model appeared as the next best thing a few years ago, many ASPs focused on acquiring new customers, no matter how much it cost. That behavior is no longer sustainable. "ASPs spent incredible amounts funding name recognition. That's dangerous if you don't have the experience to back it up,"

CONTINUED ON PAGE 11 › › › ›

RENOVATE & INNOVATE

ATM and frame relay keep on reinventing themselves

BY BART STIDHAM

What economic downturn?

Customer demand for packet- and cell-based services continues to grow, with value-added services leading the way to increased revenues for service providers. The reason for the continued interest in venerable packet switching technologies is twofold: First, from a user's perspective, they generally work according to expectations. And second, service providers continue to improve upon the core packet technologies of ATM and frame relay.

International Data Corp. expects smooth and steady growth in the US in the number of frame relay customers and ports installed (see figure 1), with growth fueled primarily by increased market penetration in the small and mid-sized corporate segments. IDC sees even faster growth in ATM customers and ports (see figure 2). Overall, IDC contends that growth in both technologies will be driven away from private lines by customer migration as well as through continued expansion of existing customer networks, particularly in the frame relay market.

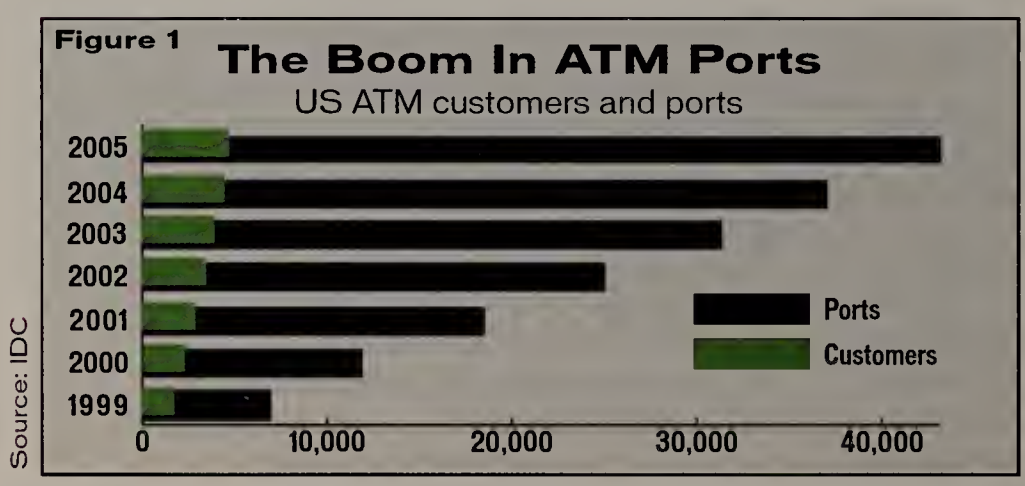
But according to industry experts, these technologies may face very different futures over the near term (i.e., the next six months); medium term (6 months to 18 months), and long term. Essentially, frame relay will likely continue as the technology of choice for corporate WANs for the long term, though eventually ATM and various VPN services will likely catch up to it. ATM will probably continue to be the backhaul technology of choice for both the near and the medium term.

THE SHORT-TERM OUTLOOK

In the near term, service providers can capitalize on the current weaknesses in DSL to attack the small and mid-sized market with better frame and ATM offerings. The last year has been a roller-coaster ride for many customers of WAN and Internet services, but frame relay and ATM service providers must be enjoying it. Many smaller and mid-sized businesses were tempted by offers of various xDSL implementations, only to have those circuits go dead months later. Just one year ago, the case for a small business switching from low CIR frame relay port speeds (less than 56K) was compelling—even though many analysts strongly cautioned against it, because they knew that most xDSL offerings simply weren't "business-grade."

Many customers have realized that the reason DSL providers are bankrupt is because they had unworkable business plans, with rates that were simply too low to support a viable business. "The DSL companies lost money on the installation, and they

Figure 1



"The number of ports will grow faster than the number of customers during the forecast period, highlighting the importance of network expansion as an engine of market growth." — IDC

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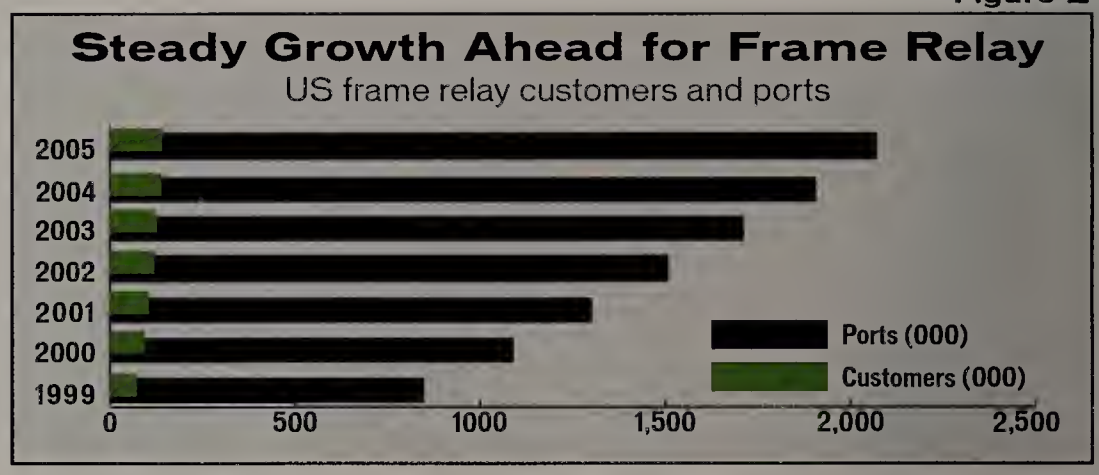
"Customer growth will be fueled by increased penetration in the small and medium-sized corporate segment; expansion of existing customer networks and new frame relay customers will fuel port growth." — IDC

Figure 2



lost money every month they collected payment," says Frank Dzubeck, president of Washington, DC-based Communications Network Architects. "Most DSL providers simply had no idea how to run a business."

Some of the larger service providers have been buying DSL access multiplexers (DSLAMs) because they can get them at bargain prices. Moreover, the DSLAMs are often already connected to the ATM backbones of those same "upstream" providers, Dzubeck notes. "Those DSLAMs are now being reprovisioned into ATM backbones, with new enterprise customers buying WAN services," he says. (Most new frame relay and ATM local loop connections are really DSL lines. According to Dzubeck, that's been true for the last three to four years; it's just that most enterprise customers weren't told how the "last mile" was provisioned.) In the cost-versus-services debate among providers, this is one tool used to bring down costs to customers.

Kevin Dunetz, CTO of the Telco Exchange in Fairfax, VA, says that the short-term outlook for frame relay is very positive. "We don't see many large ATM networks being rolled out due to the large minimum port size of a T-1 and the long provisioning times. It's very hard to recommend to a customer that they should go with ATM when we know that it may take as long as a year to provision the network."

Ultimately, services are likely to be the primary way that providers of frame relay and ATM continue to wring revenue out of these older technologies. The DSL fiasco has brought a valuable lesson to customers of enterprise services: you do get what you pay for. Service providers are doing everything they can to drive home this message with new managed services and offerings.

Dunetz believes service providers need to stop the price erosion of the market by offering new value-added services. "Right now, there is essentially no product differentiation among providers, and therefore no reason to choose one provider over another on anything other than price. Service providers need to increase the value of their services by adding new offerings, such as secure WAN monitoring systems."

For now, the majority of ATM continues to be within service provider networks. "The primary use of ATM in service provider networks today is for backhauling other services—carrying backbone frame relay, IP, and VPN traffic—and in newer applications such as DSL aggregation, packet voice, and backbone carriage for wireless traffic," notes Harry Goldberg, WAN & Advanced Carrier Services Senior Analyst at Cahners InStat Group in Scottsdale, AZ.

CHANGES IN THE WIND

Many larger businesses are starting to outgrow the capacity of traditional frame relay networks and have to look for higher-speed options to support the ever-increasing bandwidth requirements of enterprise software. Some customer sites find themselves needing port speeds of 383kps or even higher. In the early 1990s, when these WAN services were deployed, the connection was likely put in place to support a daily batch upload into the corporate data center. Those data feeds have now become data flows as the need for up-to-the-minute reporting and real-time systems has appeared. Many finance departments have installed OLAP tools to create "financial portals" within the company. These systems attach to databases in real time rather than relying on batch processing. As a result, they demand low-latency highly reliable circuits with higher capacity.

These remote office circuits have to feed into something, and that something is increasingly a digital service level 3 (DS-3) interface in the corporate data center. This, in turn, is driving the need for frame relay to ATM gateways. DS-3 is the current maximum frame relay port speed. Large corporate customers needing higher speeds are now deploying ATM backbones and tying their legacy frame relay networks into this via either FRF.5 or FRF.8. These gateways are already built into most providers' networks and are yet another way they can charge customers for additional services.

In addition to taking on the role of managing these services, frame relay and ATM providers are also coming up with new ways to sell application-oriented services. Security and multimedia are two big spaces where providers are gearing up for new revenue generation. Much work has been done to map ATM quality of service (QoS) into H.323 and MPEG2 multimedia. ATM is much better suited to multimedia such as real-time voice and video than traditional IP networks. Real-time multimedia has extremely demanding QoS requirements for which IP networks were never designed.

Bart Stidham is a technology consultant based in Stow, Mass.

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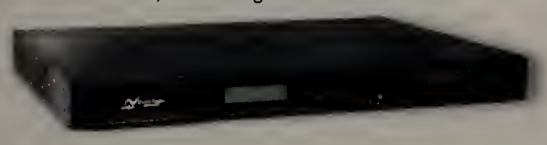

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BY LENNY LIEBMANN

Out of Thin Air

Service providers race to build profitable wireless data networks

PEOPLE LOVE MOBILE PHONES. People love the Internet. So mobile 'Net access ought to be a sure winner in the network marketplace.

There are several factors and challenges—including a pinched capital market, the burdensome cost of building high-bandwidth 3G networks, and uncertainty about which services customers are willing to pay for--that service providers must meet and overcome. Those that do will lay claim to a stake in a wireless market that is widely acknowledged as one of the most significant business opportunities today.

Adding more challenge to the mix is that the success of wireless data services in other global markets can't easily be replicated in the United States. NTT DoCoMo's iMode service (based upon 2G network technology), for example, has become enormously popular in Japan. But according to Chi Dang, director of engineering at Redwood City, Calif.-based wireless infrastructure provider AlterEgo Networks, that's because market conditions there are so different. "For most young people in Japan, iMode is their first and only Internet experience," notes Dang, a long-time industry observer. "In the U.S., most people have come to know the Internet through the PC, where they have a rich graphical interface and lots of easy-to-use navigational tools. In comparison to that, what they can get on a cell phone feels very unfulfilling."

DoCoMo also took a very aggressive approach to developing content for its iMode service. The carrier implemented a micro-payment billing system that charges customers for their content use. That revenue is paid to iMode's third-party content developers, creating a strong financial incentive for such developers to create and market iMode value-adds. The result is that there are thousands of companies developing content specifically for iMode, designing it specifically for the limited display capabilities of iMode handsets.

To date, U.S. service providers haven't embraced that type of business model. In many cases, rather than sharing revenue with content developers, they've actually charged such developers a "slotting fee" for being listed as a menu item on their customer's handset displays.

That was the experience of Tad Goltra, director of product management at Sunnyvale, Calif.-based Vicinity Corp., a provider of location-based e-commerce marketing applications for franchisors and multi-location retailers. "That seemed to make sense back in the heyday of advertising-based business models," Goltra recalls. "But the way things stand today, it doesn't make sense for us to pay slotting fees."

Slotting fees also don't make much sense for service providers who are seeking lots of value-added content. For a company like Vicinity to be able to pay slotting fees, it must sign

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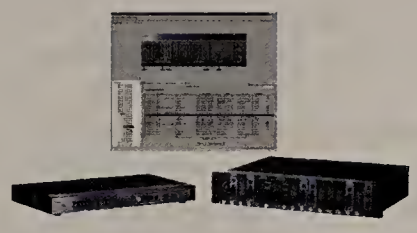

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up enough corporate clients to make those slotting fees worthwhile. That places the risk on the content developer—which isn't necessarily the best strategy for promoting development.

Dang argues that providers would be smarter to bill their customers on a per-use basis for such location-based services, as iMode does. "If you're out with your wife and she suddenly decides she'd rather go to the movies instead of to dinner, I doubt you'll worry about the cost of being able to get movie times of nearby theaters right from your phone," he says.

Location-based services aren't the only ones that could potentially create revenue for service providers, of course.

Security is also likely to be a big issue in the adoption of wireless data services. With sensitive business information flying through the air, users are going to want providers to be able to offer some assurance of protection from signal-scanning hackers. Such security applications may well prove to be a competitive advantage for those providers who can deliver encryption, digital certificates, and other security measures.

IT MUST BE AFFORDABLE

But the main stumbling block for wireless data services remains infrastructure. The spectrum auctions necessary to

It's difficult to imagine a future where wireless data services won't eventually thrive.

Information services such as stock prices and messaging services such as SMS, among many others, are potentially attractive to today's mobile, 'Net-addicted customer.

Another possible market may be for services such as remote facilities management and equipment monitoring. Farmington, CT-based heating and air conditioning manufacturer Carrier, for example, is piloting a service that enables customers to control their units from anywhere via the Web, and will let the company troubleshoot them as well.

A BIGGER MENU...

With so many potential services possibilities, TeleChoice research analyst Eric Rasmussen says that service providers should work more closely with larger numbers of content developers to create a greater range of offerings. "People's needs and interests vary so greatly that service providers really need to think in terms of hundreds or thousands of content partners," he insists. "A few dozen just won't cut it."

But for American users to cozy up to such services, interfaces will have to be more attractive. That will require new 3G networks that can deliver more graphical applications over wireless links—as well as 3G handsets that can support them.

launch 3G markets have yet to be initiated, and it's unclear exactly how service providers will shoulder that capital investment. "Service providers really need that spectrum to deliver 3G services," says Rasmussen. "But if the stock market doesn't cooperate, it's going to be tough for them to pony up for the auction—or to build the networks to support the new spectrum that they might buy."

In addition, some network equipment vendors have gotten badly burned by the financing they offered to service providers such as now-bankrupt DSL companies. That's likely to make it even more difficult for service providers to get vendor financing for their 3G network buildouts.

Despite all these obstacles, it's difficult to imagine a future where wireless data services won't eventually thrive. "The number of people using mobile devices, including phones and PDAs, continues to grow. And all of those people are becoming more and more dependent on Internet content for their business and their personal lives," notes Rasmussen. "So the good news is that a market is definitely going to develop for mobile data services, even if it's going to take a while for it to happen in the U.S."

Lenny Liebmann is a Highlands, NJ-based technology writer.

‹ ‹ ‹ CONTINUED FROM PAGE 3

says Kate Murphy, research director, professional services, for AMR Research Inc., a Boston market research firm. "A lot of them signed deals that were woefully unprofitable."

For some types of service providers, however, the prospects are good. Waltham, Mass.-based Guardent Inc., a security and privacy services provider, has seen a strong demand for its services since the firm was founded in late 1999. Security threats are omnipresent, and hackers don't seem to sleep: "We're very happy about the intractability of the problem," says Jerry Brady, vice president of research and development for Guardent. Customers are demanding faster incident response times every day, but the basic nature of the services—security—doesn't change.

Profit pressures are driving XSPs to find new ways to get money in the door—now. When Argentina deregulated its telephone service last year, IPlan (a service provider located there) purchased the Hewlett-Packard NextGeneration Telephony Solution, a hardware-and-software bundle from HP and StarVox Inc. This product allows IPlan to offer phone service over its IP network without needing to invest in traditional telephony equipment. IPlan can offer its customers—mostly small- to mid-size businesses—an average 40 percent reduction in their phone bills. "For a typical small to medium-sized business, 75 percent of its communications bill is voice and 25 percent is data. With our software, you can go in with the line you already have and start offering phone services. It generates revenue immediately," says George McGregor, general manager for U.S. operations for HP's Telecomm Infrastructure division in Palo Alto, Calif. The focus is on helping XSPs get more revenue from their existing customers as opposed to acquiring new ones.

XSPs are scrambling to find a business model that will withstand these tougher times while also meeting their customers' needs. While making the transition to profitability, it pays to hunker down and conserve money. Says Jay Adelson, chief technology officer and co-founder of Mountain View, Calif-based Equinix Inc., "If you're not fully funded today, you're toast."

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NetworkWorld white paper

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Briefs

The wait for 3G cellular services ended last week in Japan, at least for 4,500 users, as NTT DoCoMo launched public trials of its Wideband Code Division Multiple Access-based service.

"Today is a valuable day as we open the first page of the 21st Century's mobile telecommunications," said Keiji Tachikawa, president of NTT DoCoMo, to a group of about 80 industry executives who were gathered in the company's headquarters to witness the launch.

The trials, which represent the first time the public in any country could get their hands on W-CDMA telephones, are scheduled to last four months after which DoCoMo is planning a full-scale commercial launch. During the trials, users will be asked to pay communications charges but will not have to pay basic monthly fees or pay for the handsets.

NTT DoCoMo: www.nttdocomo.com

Exodus Communications is expanding its managed services to include managed security monitoring from **Counterpane.** The companies announced an alliance last week in which Exodus will sell Counterpane's Managed Security Monitoring service, which tracks network activity on firewalls, intrusion detection systems, routers and servers. Information collected from those network devices is then used to identify and prevent attacks.

The Counterpane service, which provides real-time event monitoring and intrusion-detection event diagnosis and resolution, will improve Exodus' incident response capabilities, Exodus executives say.

Exodus: www.exodus.net; Counterpane: www.counterpane.com

C&W CEO sees hosting and VPN gains

NetworkWorld Q&A

Graham Wallace, CEO at Cable & Wireless spoke recently with Network World *Senior Editor Denise Pappalardo about how the service provider is tackling the market in light of the weakened economy.*

What's your business strategy today and going forward?

We've been pretty consistent now for a couple of years, but it's important to remember where we came from. Cable & Wireless was very much a series of separate national telephone companies offering mobile, telephony, data and Internet services. We were doing everything all around the world. It became clear a couple of years ago when I took over that we needed to focus. Trying to do everything everywhere was a recipe for disaster. We chose to focus on business users, data services and specific geographies.

What do you mean geographies?

We had always had a big business, for instance, in Hong Kong. But if you look at the markets where business customers are buying IP and data services you find that 85% of the world's market is in the U.S., Europe and Japan. And if business units didn't fit, we sold them or are selling them. The result is a focused business and a very strong balance sheet. It's that balance sheet that gives us a real competitive advantage when the rest of the industry is burdened with debt.

Cable & Wireless is building networks and selling business services in the U.S., the U.K. and Japan. Are these networks identical? Are you using the same gear and technology in each?

Yes. Access is tricky, but from a core backbone perspective, absolutely. The core nodes are absolutely consistent. Obviously, local access is all sorts of different technologies. We're consistent with architecture and vendors. That gives us more clout in terms of buying, which reduces costs.

In terms of network buildout, where are you in each of those markets?

In the U.S. we've got enough capacity certainly to last us, looking at the latest numbers, a good 12 months. We did a big upgrade in the U.S. in November 2000. And before that, we were capacity-constrained, actually freezing orders, and not taking on new customers for a while because of that. We're comfortable with

See **Wallace**, page 36

Web hoster Conxion adds apps management

BY JENNIFER MEARS

SANTA CLARA — Conxion, a Web hosting company that links its data centers with a Tier-1 global network, now offers managed services up to the application layer, thanks to a recent alliance with an application management company.

Conxion is teaming with Totality, which manages applications and infrastructure for companies such as Kmart, Martha Stewart Living and American Airlines to provide companies with a single source for managed services that extend from the network to the application.

From its beginning in 1995, Conxion has focused on the idea that applications would be hosted on the Internet, says Phyllis Davidson, senior manager of strategic alliances.

As a result, the Web hoster offers a "next-generation network" built for hosting, she says.

Conxion's data centers are located in four U.S. Internet exchange points in Silicon Valley, the Washington, D.C. area, Chicago and Seattle; as well as in London, Amsterdam and Brussels, Belgium. Conxion offers what it calls FailSafe, a service-level agreement (SLA) that guarantees 99.999% uptime.

"We've been looking for a way to bring that SLA up to the application layer," Davidson says.

The alliance with Totality will let Conxion do that by combining Conxion's expertise in networks, servers and operating systems with Totality's experience in e-business application management, including system development, prelaunch testing, tuning and optimization, she says. Through the alliance, companies will get a single contract and SLA. The companies' network operations centers will serve joint customers in tandem.

Larry Buchsbaum, director of e-sourcing strategies at The Yankee Group, says the alliance is good news for corporations, which otherwise would have to hunt around for similar services that "probably wouldn't be as comprehensive."

"The combination of taking a managed hosted environment like Conxion and adding in a strong component of managed services, Totality gives the end user the ability to sleep at night," he says. "It's one strong, single point of accountability."

Totality offers application management services from vendors such as iPlanet, Interwoven, Blue Martini, BEA Systems, E.piphany and Oracle.

Prices for the combined Totality and Conxion service average between $350,000 to $500,000 per year.

Conxion: www.conxion.com; Totality: www.totality.com

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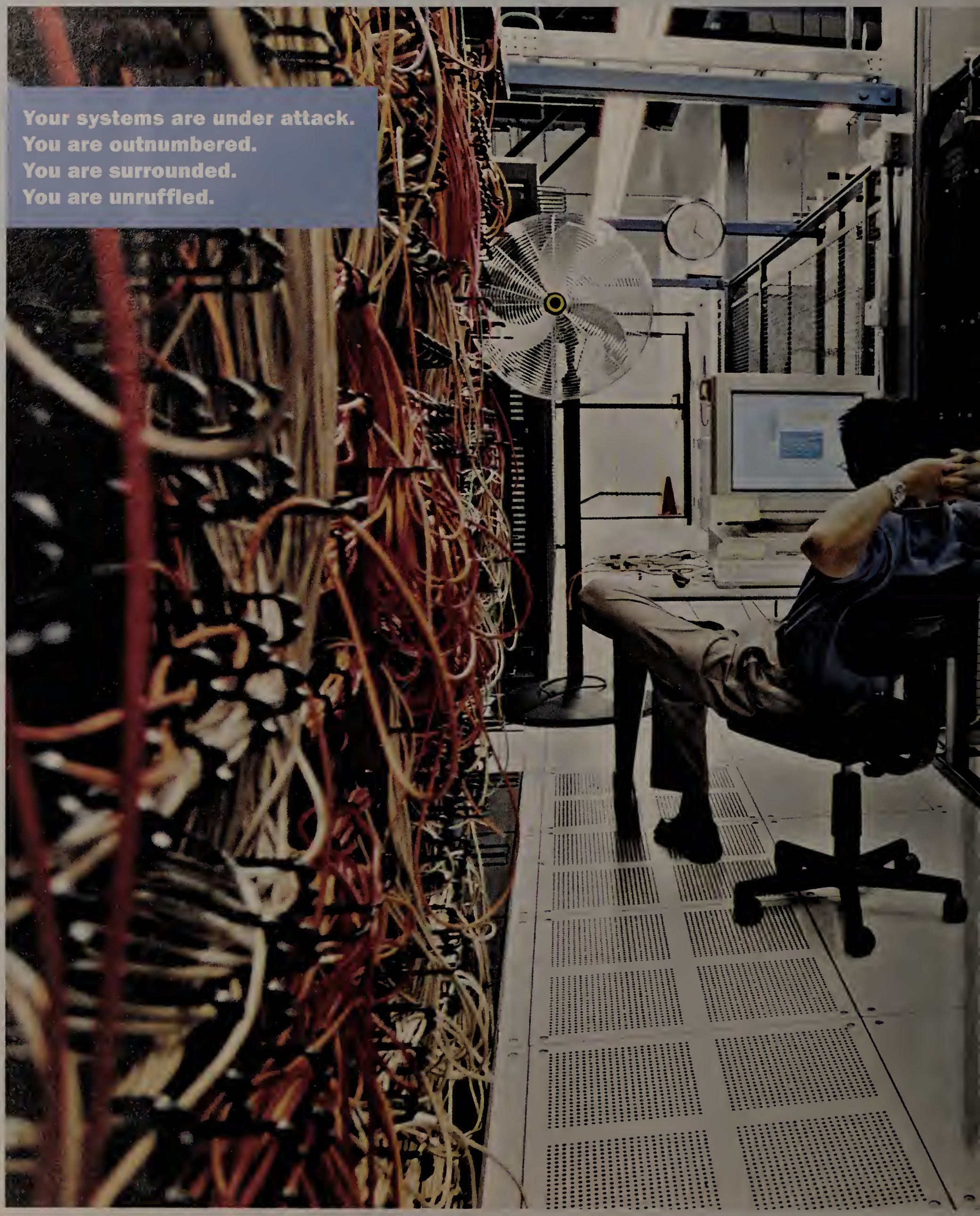

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Wallace,
continued from page 33

what we've got in the backbone in the U.S, and the same is true in the U.K. In Europe the backbone is about 60% complete. ... We've got the most work to do in Japan. That's a sort of five-year program.

On the enterprise-user side, what services are growing fastest and what do you anticipate to grow more down the road?

We see a lot of growth in high-end hosting. The economics and the technology will drive more and more companies to outsource their hosting activity. It doesn't make economic or operational sense for corporate customers to do their own hosting.

Why are some large companies not outsourcing their Web hosting?

It's just a timing issue. One of the rules about outsourcing is that you shouldn't really do it unless you've got what you're going to outsource under pretty good control. If you don't have it under control, the person you outsource to can rip you off. And you have to remember that Web and application hosting is still new. It's a young market.

Are your Web hosting services targeting small, midsize or large businesses?

"One of the rules about outsourcing is that you shouldn't really do it unless you've got what you're going to outsource under pretty good control."

Graham Wallace, Cable & Wireless, CEO

It's a bit of them all. We want to move over time to more of the managed outsource stuff than the co-location stuff because the economics for us work better there, and we add more value at the high end. Plus at the higher end, of course, it's stickier. Because once you have outsourced your hosting, provided that the service provider does a good job, it is quite difficult to switch. Whereas it's much easier to switch collocation service providers.

What about managed VPN services? Are you seeing a lot of growth there?

The demand is considerable. Quite frankly our problem there is meeting the demand. We've just done a very big IP VPN in the U.K. for Marks & Spencer (a store chain), connecting all of its stores. It was a bigger order than we expected, and it absorbed quite a lot of our capacity. But it's worked out fine, and they're very happy. The economics of an IP VPN for a big company like Marks & Spencer with lots of sites are pretty powerful.

Have you noticed any changes in your customers' buying habits based on the changing economy?

We have seen some issues that are related to the economy on the wholesale side, with some of our ISP guys. They are under strain, and there is consolidation in the market. So we're definitely seeing an impact there. Right now I'm not aware of any big issues on the enterprise side.

What would you tell business users when they ask why they should choose Cable & Wireless over WorldCom, AT&T, Sprint, Genuity or any other competitor?

First of all, you've got to be competitive on price. Secondly, business users want some sort of objective measure of service performance and reliability of the network. And on the hosting side, we've got some pretty good reference customers on the high end. And we use our financial strength. Customers want to know you're going to be around in 12 months. Those are the sort of features that we score on. ◪

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Eye on the carriers . Johna Till Johnson

Crafting contracts with escape routes

Two weeks ago we discussed procedures for ensuring that your company gets the best possible telecom contract. Now we'll take a look at some of the clauses that contract should include.

First and foremost, keep in mind your biggest weapon when dealing with carriers is your ability to walk away — without paying a hefty penalty. That means your goal should be to construct a contract with as many "out" clauses as possible. Circuits not provisioned on time? You're gone. Network latency driving your users insane? Hasta.

Even if you have no intention of leaving, a credible departure threat works wonders in obtaining services. A client of mine parlayed a missed circuit install-time into a 40% price decrease for her frame relay WAN.

So what are good "out" clauses? My favorite is the MAD (merger, acquisition, divestiture) clause. If your company is bought, or buys another company, you have the option of renegotiating your contract, or of being assumed under the other company's contract.

Technology re-evaluation is another good one. Let's say you put in an ATM network two years ago to support voice-data convergence . . . but now you'd like to test-drive IP telephony. Your service provider doesn't support it? Time to open up the bid.

Benchmarking is good opportunity for an "out," but be careful: Providers often will propose a best-of-breed clause that says, in effect, "We will compare your terms and conditions to those of comparable customers and adjust to ensure you receive the best terms we offer those customers."

There are two problems with this approach. First, the provider decides who's comparable. Oddly enough, when my clients invoke this clause, they're often told they're unique, so the lower rates that others have obtained don't apply to them.

The second: Service providers will only benchmark you against their customers. That won't help you obtain market-leading terms and conditions. The best way to craft this clause is to build in your right to be benchmarked by a third party, and make sure the third party includes contracts signed by your provider's competitors.

The most effective "out" clauses are those that apply to your service-level agreement (SLA). The catch is crafting an effective SLA requires understanding your business goals and application requirements. What's your definition of "uptime"? For IP services, that might include a functioning DNS. How about "throughput"?

Your answers will vary. However, key metrics you'll want to think about include latency, which affects the performance of interactive applications; jitter (latency variation), which can affect the quality of voice and multimedia services; and available bandwidth. You should also agree upfront on SLA measurement tools (and on whose measurements you'll trust). Finally, you'll need to define escalation procedures for addressing problems.

Johna Till Johnson is senior vice president and CTO for Greenwich Technology Partners, a network consulting firm. She can be reached at johna@greenwichtech.com.

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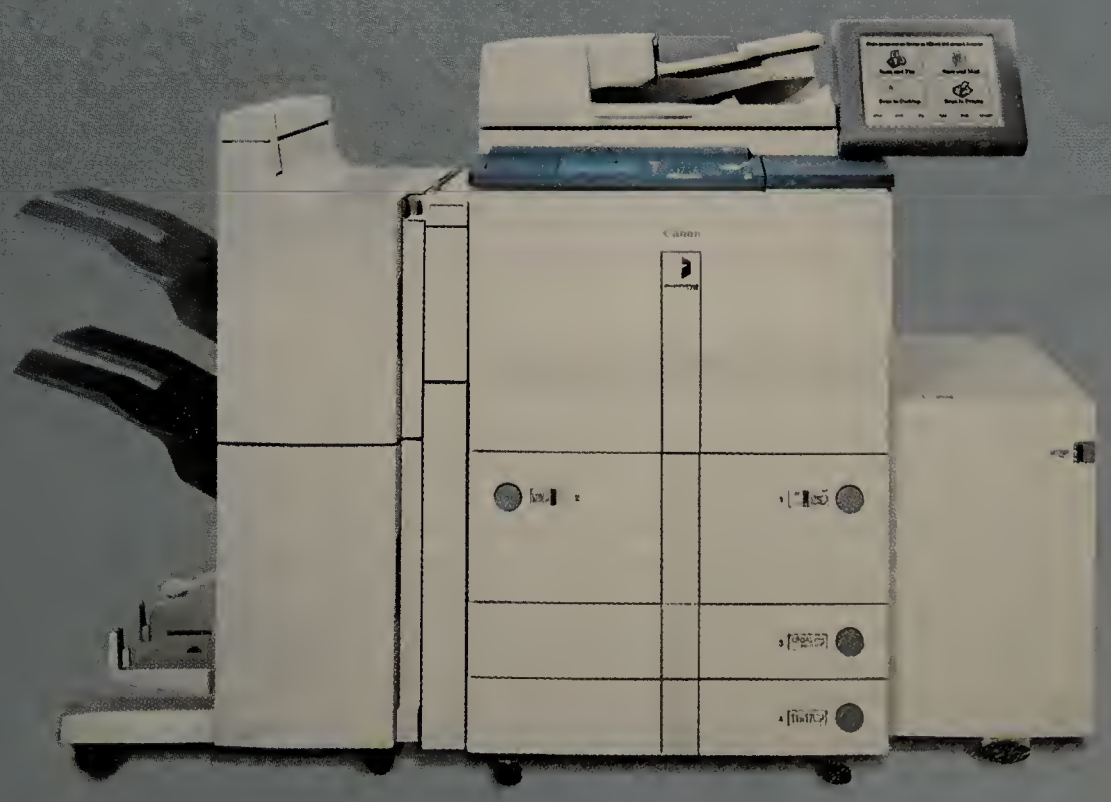

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Fixed wireless no wipeout, despite recent troubles

BY MICHAEL MARTIN

Fixed wireless providers have been in the news a lot lately for all the wrong reasons. Two months ago, Winstar Communications and Advanced Radio Telecom filed for Chapter 11 bankruptcy. And Teligent — which saw its founder, chairman and CEO Alex Mandl resign after a new investor came onboard — filed for Chapter 11 last month.

Despite these setbacks, industry observers don't believe fixed wireless is going away any time soon. In fact, recent reports assert that fixed wireless services are set to become a multibillion-dollar market. One study, from research firm Insight Research, predicts broadband wireless revenue in North America will surpass $14 billion by 2006. By comparison, in 2000, revenue for the industry stood at $963 million.

So if wireless broadband is set to explode, why are companies like Winstar and Teligent having trouble making a buck? A major factor is that both companies built their networks quickly, incurring massive debt. This strategy worked well as long as the venture capital markets were willing to float Winstar and Teligent more money. But once the markets dried up late last year, so did the wireless providers' coffers and their immediate prospects.

Another reason is that the target market for Winstar and Teligent — corporate users — has been slow to accept wireless as a must-have technology.

"We see the technology as being primarily residential," says Peter Jarich, an analyst with research firm The Strategis Group. "We're not seeing business as the right way to go."

FIXED WIRELESS

Analysts see next-generation technologies spurring growth this market has yet to see.

Wireless winds up

Fixed wireless revenue is set to grow dramatically in the next several years.

North American fixed broadband wireless subscriber revenue (in billions)

SOURCE: INSIGHT RESEARCH

Business concerns inhibit adoption

Business users have a range of connectivity options to choose from, Jarich explains, and they're more concerned about quality of service (QoS) and reliability than are residential users.

When businesses decide to go with a fixed wireless link, it's often as a back-up connection, or for less critical traffic only, says Chris Whitely, an analyst with Insight Research.

QoS has been a concern with fixed wireless because wireless signals are more easily disrupted than landline signals. Even though wireless providers say they account for "rain fade" — the weakening of a wireless signal due to rain — a bad rainstorm can bring down a wireless link.

Also, interference from other wireless signals is an issue for operators using unlicensed spectrum, Whitely notes. Although there are informal rules in place to try to prevent interference in unlicensed bands, it's still a possibility, he says.

In addition to unlicensed spectrum, there are two licensed bands.

Local multipoint distribution services (LMDS) cover the 28-GHz band. LMDS requires a line of sight between points on the network, but can deliver speeds of more than 155M bit/sec. Winstar, Teligent and XO Communications are providers that offer LMDS-based services.

The other licensed band is known as multichannel multipoint distribution services (MMDS). MMDS covers the 2-to-3-GHz band. While MMDS only supports speeds of up to 10M bit/sec, the second generation of the technology — which is just becoming available — requires no line of sight and is less susceptible to interference than LMDS. Sprint and WorldCom are examples of operators that own MMDS spectrum.

There are converts

While skeptics may question the viability of fixed wireless, the technology has caught on with some users.

One such company is Group Manufacturing Services (GMS), a 100-employee, sheet metal maker in Phoenix. GMS was using a dial-up account for its e-mail and Internet access. The e-mail got dumped into the company's server once per day. But when the company's ISP, Compuserve, stopped supporting Lotus cc:Mail, GMS began looking for other connectivity options.

At first the company considered DSL service from Qwest Communications, but Qwest couldn't provision the service because of bad copper wiring, says Randy Babchuk, GMS' systems manager.

So GMS turned to Kite Networks, a fixed wireless provider in Phoenix that operates in the unlicensed spectrum. Kite provided GMS with a dish, which connects into the company's Internet and e-mail server.

"It's been great for us, because everyone can access their e-mail and the Internet any time they want to," Babchuk says.

So what's it going to take to get more businesses on board the wireless bandwagon?

Observers say it's going to take time for businesses and residential customers to test and grow accustomed to the technology and next-generation equipment. Once carriers such as Sprint and WorldCom finish testing the equipment later this year, fixed wireless should start to take off.

"This next-generation equipment is going to be a big plus for MMDS," Jarich says.

Sprint, which holds MMDS licenses in 90 markets, is already serving MMDS in 14 areas. The service provider is targeting consumers and small businesses with offerings that provide download speeds of between 1M and 1.5M bit/sec and upload speeds of around 250K bit/sec. Pricing for the business-class service is around $150 to $200 per month, including multiple IP addresses.

Sprint has a head start

Sprint has said it will accelerate its wireless rollout once it has next-generation, non-line-of-sight technology ready. The provider plans to select an equipment vendor for next-generation MMDS later this year.

Meanwhile, WorldCom has invested more than $1 billion to pick up MMDS licenses in about 160 markets across the U.S.

"Despite the high-profile failures we've seen, we think this is a temporary setback," Whitely says. "Providers are definitely going to implement more broadband wireless."

As for Winstar and Teligent customers, observers say they shouldn't be concerned they'll be left out in the cold. Both companies are continuing to operate while resolving their bankruptcies, and potential buyers would likely want the companies' customers in addition to their equipment and licenses. ◪

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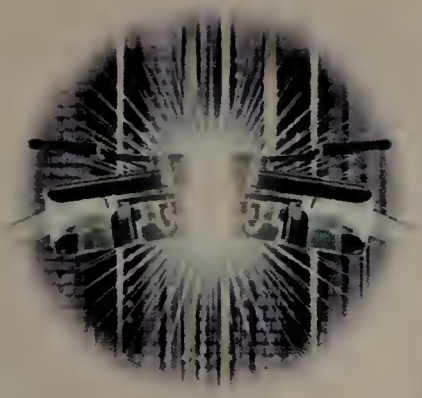


The Edge

Service provider developments at the juncture between the enterprise and the new public network

Briefs

Quantum Bridge Communications has announced the withdrawal of its IPO registration statement with the Securities and Exchange Commission.

The company cites poor market conditions as the reason for the decision. Quantum Bridge President and CEO Tony Zona says the company plans to "revisit the public markets when conditions improve."

Quantum Bridge: www.quantumbridge.com

Embedded Linux vendor **Lineo** recently rolled out clustering software for service providers and carriers.

Availix Horizontal Clustering 1.3 provides failover, availability and fault tolerance for up to seven Linux servers. Availix is based on the CompactPCI bus architecture and supports Fibre Channel. It allows content sharing on a storage-area network through the Global File System (GFS 4.0.1) and a common storage array.

The cluster, which will run Oracle Parallel Server, can be managed remotely via the Simple Network Management Protocol. It also can run the Zeus Web server for improved performance.

Availix sells for $2,000 per CPU and is available now.

Lineo: www.lineo.com

Aura Networks last week said it received NEBS Level III certification for its **Radiance Optical Ethernet System.**

The company claims the line is the first for the metropolitan-access market to receive this kind of certification. NEBS Level III is a series of standards designed to ensure that all equipment meets stringent environmental and operational requirements, thereby maximizing network reliability for service providers.

Aura Networks: www.auranet.com

Siemens leaps into packet telephony

BY TIM GREENE

Siemens, a longtime leading supplier of traditional circuit-switched telephony equipment, is betting all its marbles on a major shift to new packet-based voice and data gear that can still interoperate with older phone networks.

Siemens acknowledges that this new push, called Surpass, is key to the company's success in phone switching. "This is literally the future of the company," says Stuart Van Houten, general manager of Siemens' broadband networks division.

Surpass will include new equipment to let traditional service providers migrate to ATM- or IP-based networks. It also represents a way for new carriers to build less expensive and more versatile networks.

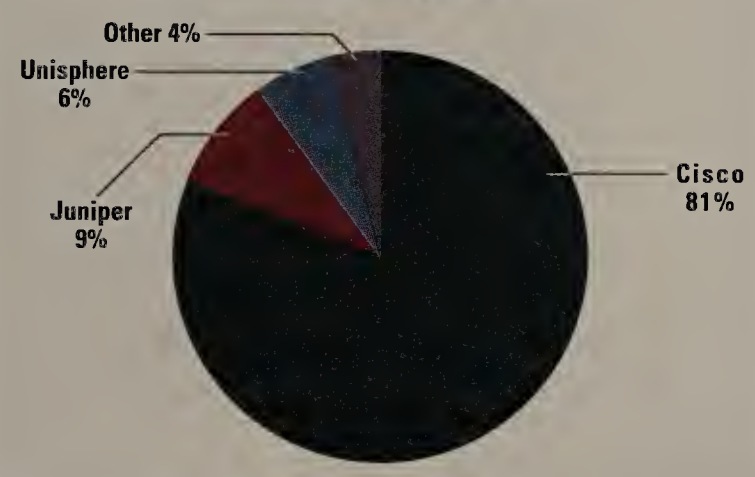
While Siemens has been selling Surpass gear overseas, it is just starting its North American push.

The Surpass scheme follows the accepted softswitch/router architecture espoused by other established vendors, such as Nortel Networks and Lucent.

Facing an uphill battle

As part of its new Surpass softswitch architecture, Siemens will use Unisphere routers, which were far behind Cisco in first-quarter sales.

Total OC-12 edge router market in Q1 2001: $544 million



SOURCE: DELL'ORO GROUP

Siemens is relying on packet-switching gear from its Unisphere subsidiary for some of the equipment in the Surpass line.

But Siemens is coming late to the packet-voice switching game. Lucent and Nortel are already shipping similar devices, and a host of upstarts, such as Taqua and Sonus, are shipping pieces of similar converged packet/circuit networks.

The Surpass plan is more comprehensive than the packet telephony plans from Nortel and Lucent, says Bettina Tratz-Ryan, a senior analyst with Gartner. Surpass calls for delivering voice and data to customers over DSL lines and for supporting DSL from existing remote terminals that extend carrier switching offices toward customers.

She notes Nortel has recently dropped its DSL efforts, and Lucent's softswitch has

See **Siemens**, page 44

Riverstone gets dense with Gigabit Ethernet

BY PHIL HOCHMUTH

ATLANTA — At SuperComm 2001 this week, Riverstone Networks will unveil a high-density Gigabit Ethernet switch aimed at service providers that sell wide-area Ethernet links to companies.

Riverstone's RS 16000 could help Ethernet metropolitan-area network (MAN) service providers better serve customers by connecting their traffic faster over long distances, the company says.

The box is aimed at service providers such as Telseon and Yipes that offer Ethernet MAN services to companies as an alternative to traditional telephone company T-1 or DS-3 WAN connections. With services that can rage from 1M to 1G bit/sec, these new kinds of service providers require huge amounts of Ethernet traffic aggregation to uplink customer connections to the core of a MAN or directly to the Internet, according to Riverstone.

The seven-slot, five-rack unit RS 16000 could be used to connect up to 60 Gigabit Ethernet links from smaller switches in a service provider's point of presence to a core MAN switch via a single 10 Gigabit Ethernet blade or several 8M bit/sec coarse wave division multiplexing (CWDM) modules. Riverstone says service providers that plan to roll out RS 16000s in their networks include Telseon and IntelliSpace, a Manhattan-based provider of Ethernet MAN services.

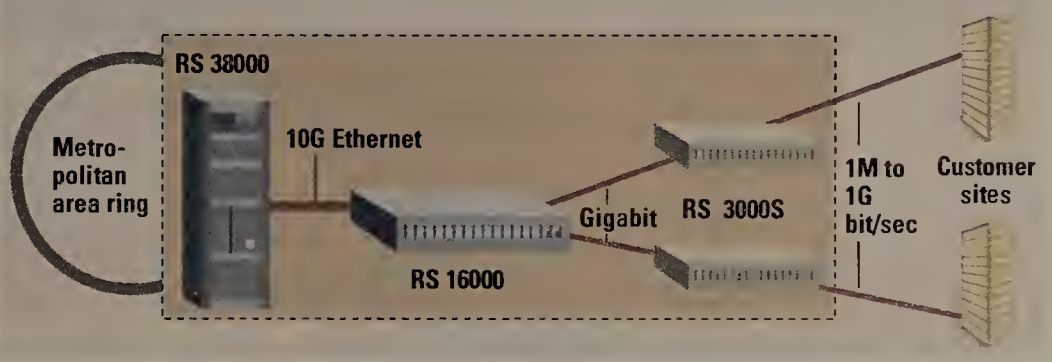
The RS 16000 also supports hardware-based Multi-protocol Label Switching on its modules, which can let providers offer services such as Layer 2-based VPNs and transparent LAN services across a MAN.

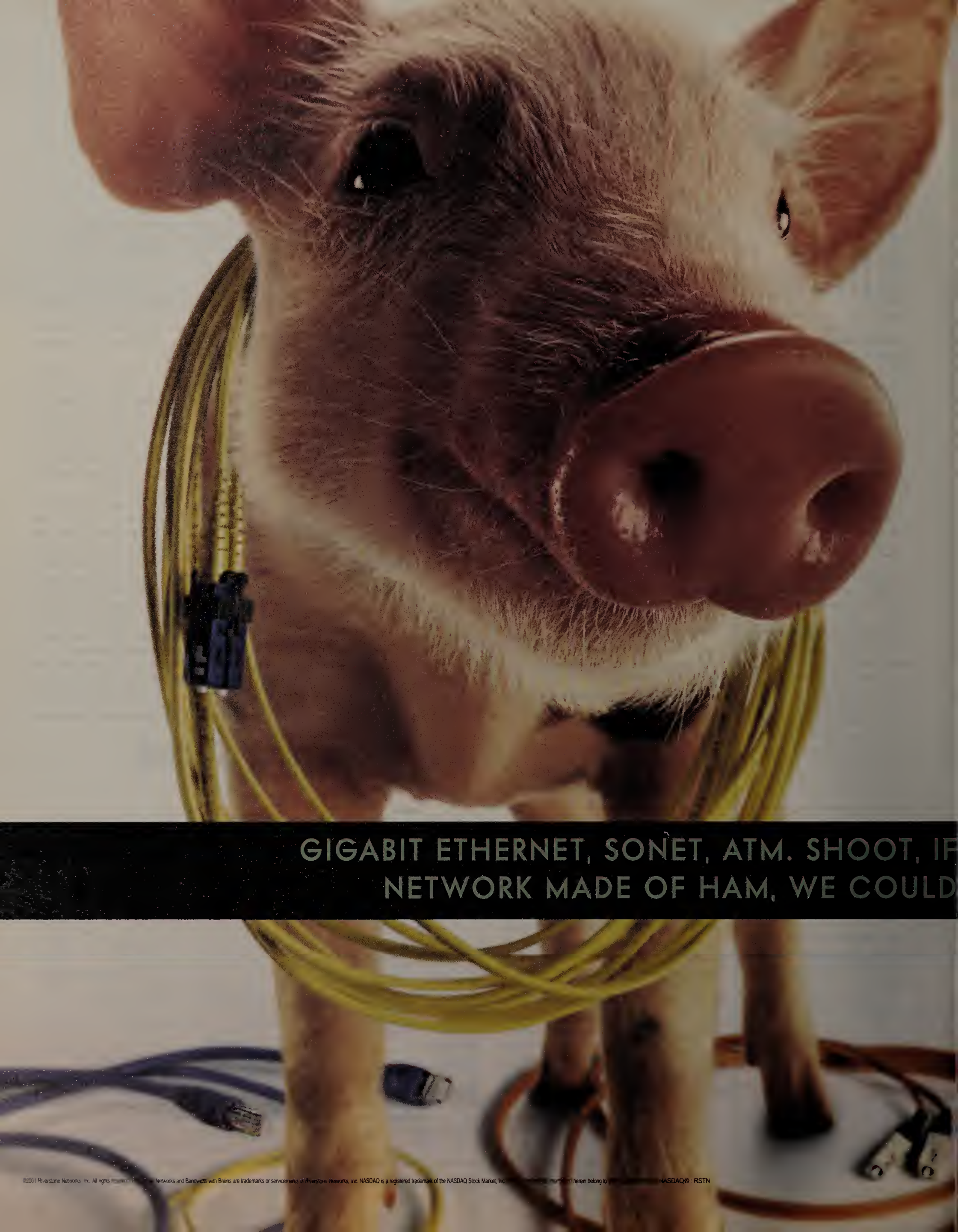
The RS 16000 complements River-

See **Riverstone**, page 44

Mucho aggregation

Riverstone's new RS 16000 can support up to 60 Gigabit Ethernet ports for aggregating customer traffic in a metropolitan-area network. The box also supports 10G Ethernet and coarse wave division multiplexing modules for uplinking to the MAN core.





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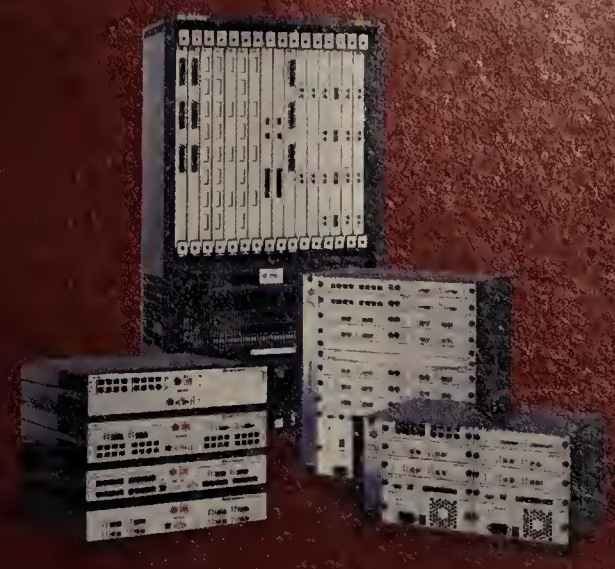

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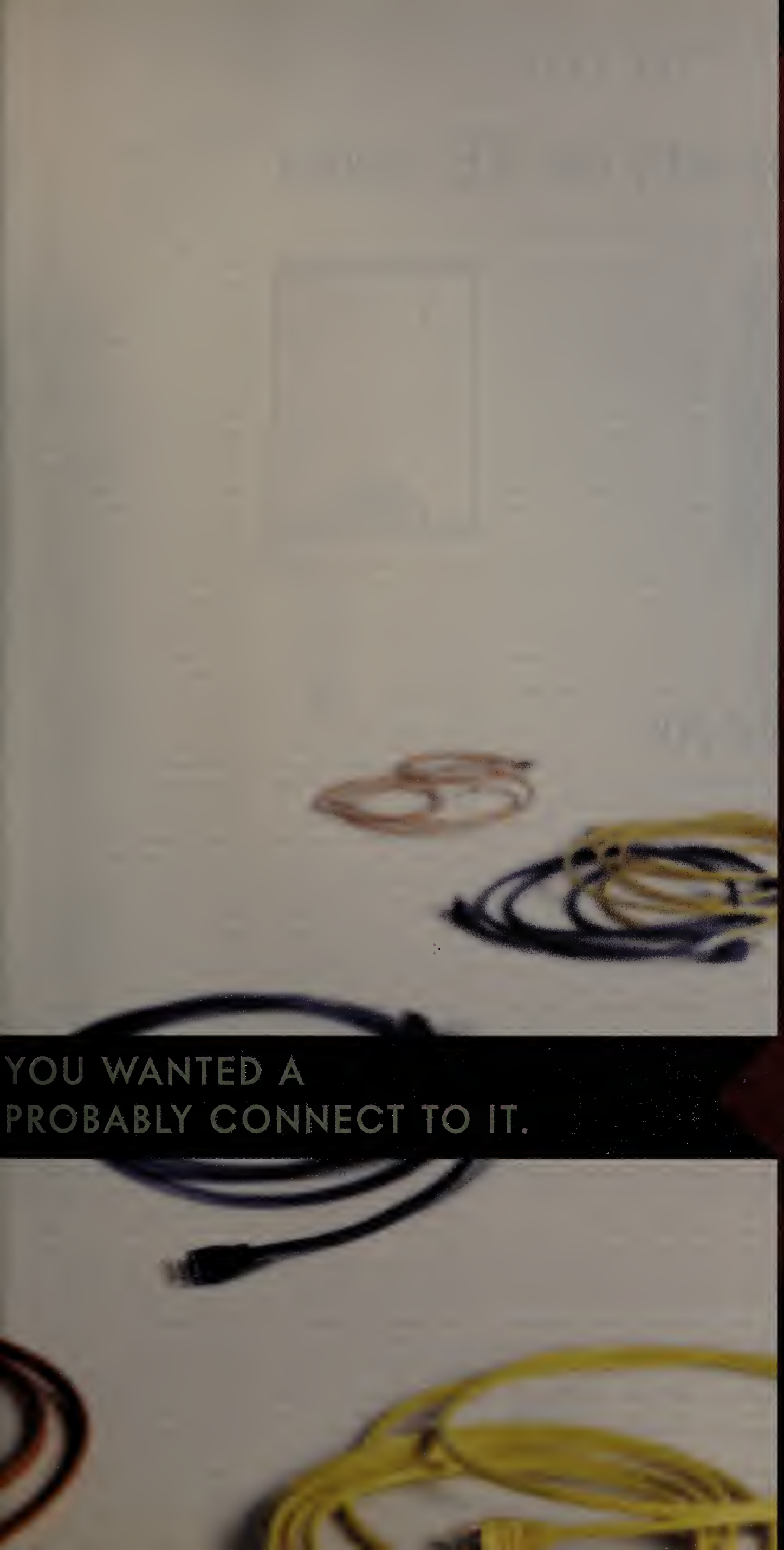

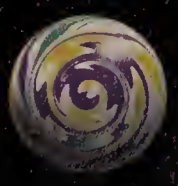

River STONE NETWORKS

Bandwidth with Brains

Astral Point certifies entry into ILEC market

Looks to ISO and OSMINE standards as seals of incumbent carrier approval.

BY TERRI GIMPELSON

ATLANTA — In an effort to further penetrate the incumbent local exchange carrier market, Astral Point last week announced its participation in Telcordia Technologies' OSMINE process for integration of network equipment into legacy operations support systems.

Astral Point claims ILECs will not issue request for proposals to vendors that do not participate in the OSMINE process. It further claims that because the OSMINE process is time consuming and very expensive, this effort is an indication of the company's plans to actively pursue ILEC business.

Up to now a provider of equipment to competitive local exchange carriers (CLEC), Astral Point recently announced a product to attract ILECs — the ON 7000. The ON 7000 integrates SONET add/drop multiplexing, cross-connect capabilities and dense wavelength division muxing in a single-bay system.

Like other start-up equipment companies, Astral Point is looking to broaden its market beyond CLECs, many of which have failed as the result of a lack of revenue, earnings and funding to build out networks to offer new broadband and optical IP services.

Astral Point will work to integrate its ON 7000 and ON 5000 optical systems with Telcordia's TIRKS and TransPort EMS (TEAMS) systems this fall. TIRKS is an integrated operational support system that supports the network provisioning process. TEAMS is Telcordia's next-generation element management system that lets service providers manage network elements, including SONET, next-generation digital loop carrier, fiber in the loop and distributed connections systems.

The ON 7000 will begin beta-test trails with multiple ILECs in the third quarter. In December, Astral Point announced that its ON 5000 had received Common Language Equipment Identifier codes from Telcordia as part of the OSMINE process.

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Astral Point will also tout at SuperComm the certification of its management operating system from TUV Management Services to ISO 9001: 2000 quality standards. ISO 9001: 2000 is supposedly more comprehensive than 1994's ISO 9000, which focused on quality procedures within the manufacturing organization.

Complying with the ISO 9000 and OSMINE standards will better position companies such as Astral Point to compete in the next-generation SONET market, which is expected to be an $11 billion market in 2005, according to Michael Arden, an analyst with KMI Corp.

Astral Point: www.astralpoint.com

Integral Access pops 'mini-POP'

BY JIM DUFFY

CHELMSFORD, MASS. — Integral Access this week will extend its IP and Multi-protocol Label Switching access portfolio downward by unveiling a system for multitenant units.

At SuperComm 2001, Integral Access will announce the PurePacketCompact service aggregator for use in office buildings, hotels, apartment complexes and campuses. This low-end addition to the company's PurePacket line of integrated access products is designed to let local exchange carriers (LEC) and ISPs deliver all voice, video and data access services from a single platform.

According to a report by Cahners In-Stat Group, broadband service and equipment sales of this nature will jump from $3.4 billion last year to $8.5 billion in 2005. Targeting the multitenant unit market may help Integral Access broaden its customer base, which is a little thin, according to Current Analysis.

"Without further expansion of its customer base, Integral Access could prove vulnerable to vagaries in the overall carrier market," Current Analysis wrote in a recent report.

The PurePacketCompact might help by appealing to service providers that want to establish mini points of presence inside buildings. PurePacketCompact can be deployed with Integral's OUTburst-SB and OUTburst Vx/Dx integrated access devices (IAD), which combine channel bank functionality with data and IP traffic transmission capabilities.

Using a single PurePacketCompact and customer-located PurePacket OUTburst IAD, carriers can provide integrated services such as analog and digital PBX, converged voice and data, plain old telephone service (POTS), LAN extension and tiered data services, Integral Access says. They can also provision ISDN, asymmetric DSL, symmetric DSL and single-pair high-speed DSL, as well as Centrex services, the company claims.

The PurePacketCompact is a smaller version of the company's high-end PurePacketNode access platform, designed for space-constrained multitenant units. Like the PurePacketNode, which was recently selected by TimeWarner Telecom for packet telephony service access, PurePacketCompact supports softswitch voice-over-IP infrastructures and legacy Class 5 switches.

A single PurePacketCompact system supports up to 40 tenants, and features up to 96 POTS lines and 72 xDSL lines in a single chassis. Service providers can link the PurePacketCompact back to their POP or central office via multiple high-speed WAN interfaces, including OC-3, Fast Ethernet, DS-3, 4 x DS-1 and E-1.

Gigabit Ethernet and OC-12 interfaces will be available in future releases, Integral Access says.

The PurePacketCompact is expected to be available this summer. The entry-level configuration starts at $8,000. OUTburst-SB customer premises equipment is less than $2,000. Entry-level OUTburst Vx/Dx Small Office/Home Office customer premises devices are available for less than $1,000.

Integral Access: www.integralaccess.com

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Siemens, continued from page 41

yet to prove itself.

Surpass consists of a media gateway called hiG that connects existing local phone switches with a packet network, and hiQ, a softswitch that handles signaling between networks, as well as call features such as call forwarding over packet networks. It also includes hiA, access concentrators with customer-facing DSL, ISDN, frame relay, ATM and traditional phone ports.

Siemens will use Unisphere's SRX softswitch and SMX mediation switch for handling voice-over-IP traffic. The SMX will supplement Siemens' own hiG, which will convert circuit voice to ATM. The hiA access devices are the fruits of Siemens $1.5 billion purchase of customer site access gear maker Efficient Networks.

Siemens is the No. 3 vendor of traditional phone switches in the U.S., behind Lucent and Nortel, so it has inroads into established U.S. carriers, including Verizon, BellSouth and SBC Communications. Also, Efficient gear has already been adopted by two regional Bell companies — SBC and BellSouth — so Siemens might get access via those accounts as well.

Siemens' trunking softswitch will be available in July. Its local softswitch, which adds features such as call forwarding, caller ID and call waiting, will be available in December. Pricing was not disclosed.

Siemens: www.siemens.com

Riverstone, continued from page 41

stone's line of switches and access devices that combine Ethernet and traditional WAN connections, says Michael Kennedy, president of the consulting firm Network Strategy Partners.

"One of the things [Riverstone] is clearly responding to is the great deal of excitement in the market about being able to do Gigabit Ethernet on a WAN," Kennedy says. He adds that the RS 16000 is Riverstone's first box aimed squarely at next-generation service providers.

While the RS 16000's high-speed uplink technologies are still far off from widespread deployment in service provider nets, Kennedy sees support for 10G Ethernet and CWDM as a good investment.

"I don't really know of any service providers using CWDM in the metro today, but it's something on everybody's checklist, and it's nice [for Riverstone] to have from a market perspective," Kennedy adds.

Riverstone's RS 16000 will be available this month, with 10G Ethernet and CWDM modules available in the third quarter. The switch will cost between $45,000 and $150,000 depending on the mix of Gigabit, 10 Gigabit and CWDM modules loaded in the chassis.

Riverstone: www.riverstonenet.com

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Enterprise Applications

Intranets, Messaging/Groupware, E-commerce, Security, VPNs, Network Management, Directories

Briefs

Candle recently announced **Version 200 for MQSecure**, software that provides security features not currently offered with IBM's MQSeries messaging applications. MQSecure provides message validation, user authentication and message privacy enhancements. New is Lightweight Directory Access Protocol-based distribution of public keys, which eliminates the need for a net manager to distribute public keys or files. Other enhancements include support for hardware encryption devices and improvements for node-to-node encryption and a Java API, which will serve to protect MQSeries applications from corruption. Available now, Version 200 costs between $800 and $24,000, depending on platform and capacity. Candle also announced its **CandleMonitor** message processing plug-in node for MQSeries Integrator Version 2. MQSeries is IBM's messaging technology for enterprise application integration. CandleMonitor performs event monitoring, which helps eliminate system downtime. CandleMonitor is available as part of the CandleNet Command Center.

Candle: www.candle.com

IBM and **i2 Technologies** said last week they would offer joint services and software for supplier relationship management to help firms lower manufacturing costs and application design time while improving supplier and buyer collaboration. I2 will offer its TradeMatrix Strategic Design for strategic design, direct and indirect procurement, and design and manufacturing collaboration. IBM offers its business transformation consulting services, implementation services, hardware and middleware, and financing offerings. The services are available now.

IBM: www.ibm.com; I2: www.i2.com

Access management grows up

BY JOHN FONTANA

IT staffs are constantly having to babysit new end users. They need to provide resources to those users; grant, modify and revoke access rights to those resources; and they need to do it in an efficient and secure way.

It's a never-ending task that requires a lot of detailed manual work. And the work gets even more complicated when business partners, suppliers and customers springboard into the mix from the Web.

Companies want to automate the task and that is fostering a convergence between Web-based access management software to control authentication and authorization, and provisioning software, which automates the task of adding and deleting users to network systems.

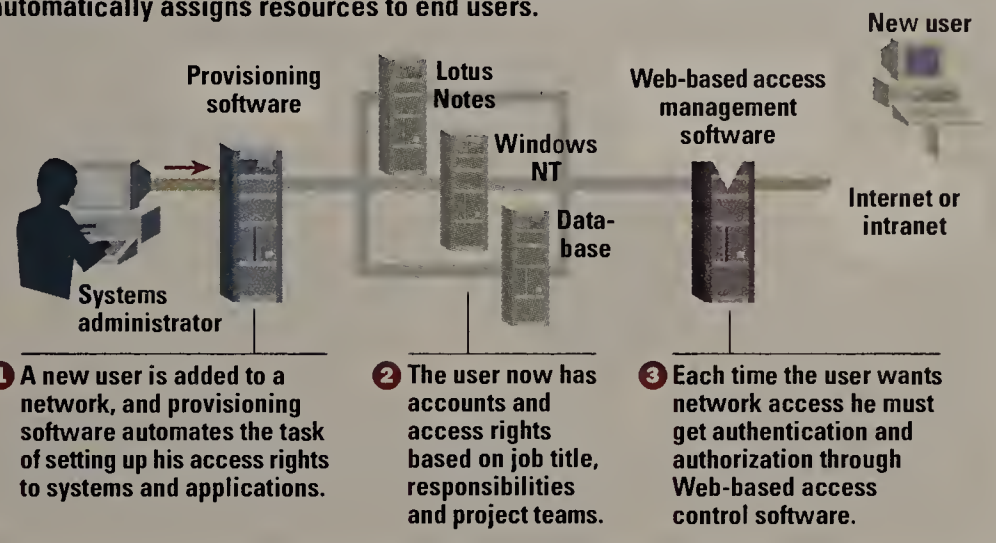
In the past month, provisioning vendors Access 360 and Business Layers have aligned with access management vendor Netegrity. Business Layers also signed a deal with Securant, which has an existing alliance with Access 360. And Deloitte & Touche has introduced an integrated identity service based on provisioning and access management. Syntegra offers similar integration consulting.

The marriage of this software helps IT build a system that automatically creates accounts and access rights for new users, adjusts those rights when a user moves jobs, and most important, revokes those rights when a user leaves a project or company. This all can be audited and tracked. And once established, access can be con-

See **Resources**, page 50

Security and management merge

Vendors are merging software for Web-based access control and provisioning that automatically assigns resources to end users.



Failed marketplaces not deterring businesses

BY KATHLEEN OHLSON

Len Duncan spent six months formatting an electronic business-to-business catalog for PetroCosm, including products, pricing and specifications. But his effort was all for naught when PetroCosm, a marketplace that offered procurement tools and services for the oil and gas industry, closed down last month.

"I was pretty miffed it went down the tubes. . . . What a waste of effort," says Duncan, vice president of Scientific Drilling, a Houston company that develops systems for survey and directional drilling. The company expected to see sales activity from PetroCosm by this fall.

Hundreds of buyers and sellers experienced difficulties when marketplaces such as PetroCosm, FreightWise, eGarden.com, Silicon Valley Oil and Chemdex closed this year. In some cases, businesses lost revenue, or they didn't get a chance to start raking in cash. They spent hours testing for software bugs, compiling catalogs or readying their infrastructures for additional hits, for nothing.

Now in the midst of the economic and IT spending downturns, some businesses are retreating from skittish business-to-business marketplaces. But some companies that were involved in failed marketplaces are still participating in similar ventures — with some lessons learned.

Hershman Recycling was one of the initial members of FreightWise, an online exchange for freight shippers and carriers, before it closed after only two months.

"It wound down as quickly as it started. It seemed to me they gave up," says Doug Granger, vice president of logistics at Hershman Recycling in Branford, Conn. Hershman didn't spend extra money to join FreightWise, but Granger spent one hour per day for about six to eight weeks testing FreightWise's online features prior to its public launch.

Granger found that FreightWise didn't offer the best prices. For example, Hershman would typically pay $1.25 per mile to transfer hauls, but some quotes came back erroneously as $1.50 per mile. Granger

See **Marketplaces**, page 50

Not open for business

A number of marketplaces have closed because of a lack of participants and cash flow:

Marketplace	What was offered
PetroCosm	Procurement tools and services for the petroleum industry.
FreightWise	Procured, executed and tracked freight movements for shippers and carriers.
Chemdex	Science professionals' site for buying hard-to-find chemicals and compounds.
Promedix	A site for doctors to buy specialty medicines.
Dellmarketplace	A site for small and midsize companies to buy PCs, notebooks and other IT wares.

Novell's GroupWise 6 is No. 1 with a bullet

Web monitoring interface is enhanced and wireless support is included.

BY TRAVIS BERKLEY, NETWORK WORLD GLOBAL TEST ALLIANCE

After an extremely smooth and ahead-of-schedule beta-test cycle, Novell has released the next version of its collaboration and groupware software, GroupWise. Version 6 was code-named bulletproof, reflecting Novell's desire to improve reliability and stability of the groupware platform. And Novell managed to add some nice goodies along the way. When it comes to features, GroupWise can go toe-to-toe with Exchange anytime.

What's new?

Most of the improvements to GroupWise 6 will affect system administrators, who will have to undergo the biggest adjustments. We'll document those here. Head online for a discussion of the new features for the GroupWise 6 client software (www.nwfusion, DocFinder: 4524).

GroupWise 6 is even more tightly integrated with Novell Directory Services, and is now completely managed from within ConsoleOne. Another big adjustment is that you need to install GroupWise 6 on NetWare 5 or newer. The agents ran extremely well on our NetWare 5.1 servers. We had equally good luck running the agents on Windows NT 4.0 and Windows 2000.

The architecture itself hasn't changed from Version 5.5. The system is still divided into domains, run by Message Transfer Agents (MTA), with Post Offices contained within, each serviced by Post Office Agents (POA.) What has changed is how much better the agents perform.

One addition first appeared for some agents in the Enhancement Pack for GroupWise 5.5. Novell added a Web monitoring interface that would let an administrator connect a browser to a POA or MTA. Through this interface, statistics could be collected and any configuration changes could be recommended. The interface has been expanded to include the Web Access and Internet Agents. If you prefer, there is a stand-alone GroupWise Monitor for Windows NT or 2000 that uses SNMP and/or HTTP to run on Windows 2000.

The new GroupWise 6 agents can run on NetWare 5 or Windows NT and 2000. Under NetWare, they can be tuned to take advantage of Novell's clustering services, to boost your fault tolerances. If running on NetWare 5, the agents can run in a protected address space. If problems are detected, the address space can be restarted without affecting the rest of the server. This is particularly handy for smaller shops that use their servers for file and print services as well as GroupWise.

Another nice feature added to POAs that will save you time is the addition of multithreaded processing. Running a database check previously required stepping through each database one at a time. Now POAs can work on multiple databases simultaneously, dramatically cutting check times. As with all of the agents, you can set the thread levels to your needs. If you've got memory to burn and a good CPU, crank up the number of threads and watch your check times drop. This multithreading capability was also added to the stand-alone version.

MTAs also received some attention. Since MTAs often communicate over WAN links, the ability to better recover from disconnects was added. A file transfer can be resumed in the middle, instead of having to start over, which can really save your bandwidth.

If you frequently move users around, you will be glad to see the process streamlined a bit. Live Move immediately updates address books to show the new address, and transferring a user's database takes less time.

To aid in backing up data, Novell added a Target Service Agent specifically for GroupWise databases. Using the GroupWise Target Service Agent, the databases can be backed up even if they're open. The Target Service Agent also lets you restore individual items back into a database. Any back-up solution that is fully Storage Management System (SMS)-compliant can take advantage of the new Target Service Agent.

Another crown jewel in the new feature set relates to limiting the mailbox sizes. These limits can be imposed at the Post Office level or at the user level. An administrator can quickly see who is using how much disk space. Messages sent to multiple people are tabulated in each recipient's count. This means the sum of the parts will be greater than the whole, so to speak.

E-mail in the taxi?

Finally, GroupWise 6 added a feature set that no other groupware vendor has out of the box. GroupWise Wireless supports WAP-enabled devices that use Handheld Device Markup Language 3.0 or Wireless Markup Language 1.1 microbrowsers. Our Sanyo SCP-4500 phone, running on the Sprint PCS network, could log on to GroupWise and gain access to most of the items that were available from the desktop. In general, anything that is text can be viewed over a wireless connection. However, attachments, even text attachments, cannot be displayed.

Just as important is the ability to create items. The method of text entry depends on your device. However, you can create mail, tasks, appointments and notes via the GroupWise Wireless server and can use the same address books. It will even pull phone numbers from the address books if you'd rather give someone a call. If you have a large number of phone users, this provides a very easy way for them to check for new messages and send quick replies if needed.

Documentation and installation

GroupWise 6 gets high marks for documentation and installation. All GroupWise documentation is now on a CD-ROM. Documentation comes in five languages: English, Portuguese, German, French and Spanish. GroupWise itself can

See **Novell**, page 52

NetResults

GroupWise 6

Score: 4.55 **COMPANY:** Novell, (408) 967-5000, www.novell.com **COST:** $130 per desktop client or $20 per Web- or wireless-only connection. **PROS:** Enhanced scalability; wireless support; new Web access; better monitoring. **CONS:** Need ConsoleOne for administration; Macintosh development halted.

Scorecard

	Accessibility 20%	Features 20%	Scalability 20%	Administration 20%	Installation 10%	Documentation 10%	Total score
GroupWise 6	4.5	5	4.5	4	4.5	5	4.55

Scoring key: 5: Exceptional showing. Defines the standard of excellence; **4: Very good showing.** Although there may be room for improvement, this product was much better than average; **3: Average showing.** Product was neither especially good nor exceptionally bad; **2: Below average.** Lacked some features or lower performance than other products or than was expected; **1: Considerably subpar,** or lacking features being reviewed.

How we did it

Our GroupWise server was a Compaq DL380 with dual 1-GHz Pentium III processors, 512M bytes of RAM and an 18G-byte RAID 5 disk array. It ran NetWare 5.1 with Service Pack 2B. Our connectivity was over a mixed 10/100 Ethernet network.

Our clients included various Windows workstations and other platforms with Web browsers, including Macintosh and some Linux desktops. We also used a Sanyo SCP-4500 Sprint PCS phone to test out the wireless services offered by GroupWise 6.

We tested the software's features and also checked accessibility, scalability, administration, documentation and installation.

To test the client software, we created e-mail, scheduled meetings and delegated our authority, like end users do.

www.nwfusion.com
CLIENT CORRECTIONS
Is this the end of end-user headaches? Read about Novell's GroupWise 6 upgrades.
DocFinder 4524 find it online

Websense is the simplest, most transparent Web filtering tool around. And the most recommended. Ask your systems integrator. Ask your consultant. Heck, call our partners direct. You'll find out why Websense is installed in companies as small as 50 people, yet covers more than 240 Fortune 500 firms. Comprehensive reporting. Automatic nightly updates. Scalability up to 100,000 users. And filtering flexibility to satisfy your CEO's every quirk. Best of all, it's self-cleaning. So you won't have to get your hands dirty. Try it at www.websense.com.

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Customer service software gets self-help tools

BY ANN SULLIVAN

Natural language search engine technology played prominently in two late-May acquisitions, as vendors scurry to deliver "self-help" customer service tools designed to alleviate the strain on contact center representatives.

Web customer service software maker Primus Knowledge Solutions bought AnswerLogic, a natural language search engine developer, in a stock transaction worth about $3 million. And natural language search specialist Ask Jeeves picked up some assets of eTour, a privately held Internet marketing company, for an undisclosed sum.

Primus went after AnswerLogic for its AE1 answer engine, which interprets the meaning of questions asked in natural language, searches structured and unstructured data repositories and delivers relevant responses. The AnswerLogic acquisition will beef up Primus' customer service and support product suite, which is primarily focused on searching structured content, such as databases. AnswerLogic's AE1 answer engine will allow Primus applications to better tap into unstructured data sources, such as HTML, PDF and other document-based formats, so companies can extend their search capabilities beyond corporate site data to mixed-media online content.

Catching customers at the Web site and answering their questions without human intervention is the most cost-effective way to handle customer service, says Joshua Greenbaum, principal at Enterprise Applications Consulting. Problem-resolution software is gaining interest as companies look for ways to automate customer service. "Web self-service has been one of those great unsung success stories of the Web," he says.

Seeking to strengthen its own self-service software, Ask Jeeves bought eTour's e-mail marketing technology, Web site delivery engine, and the eTour.com Web site, a search engine alternative that helps users navigate the Web based on their interests. By the fourth quarter, Ask Jeeves plans to integrate eTour's technology for delivering targeted Web sites to users into its own Web site, Ask.com.

Buying eTour and its subscription and advertiser bases also broadens the revenue sources of Ask Jeeves, which hopes to achieve pro-forma profitability in the fourth quarter.

"[Still, at] the end of the day, Ask Jeeves, with its stock price in the $2 range, is without a doubt a potential acquisition target," Greenbaum says.

He says consolidation among players in the broader CRM market is inevitable if vendors of smaller point products are to compete with comprehensive CRM platforms from vendors such as Siebel and PeopleSoft. ◪

CRM combos

Vendors look to round out their CRM offerings with mergers and acquisitions.

Deal	Gain	Value at time of announcement	Announced
Ask Jeeves buys eTour	Direct e-mail marketing tools	Terms not disclosed	May 22, 2001
Primus buys AnswerLogic	Natural language processing technology	$3 million	May 21, 2001
Kana Communications and Broadbase Software merge	Kana's customer service and marketing tools/Broadbase's analytical applications	$75.8 million	April 9, 2001
SAS Institute buys Intrinsic	Campaign management tools	Terms not disclosed	March 21, 2001

Resources,
continued from page 47

trolled with a Web-based, single sign-on for authentication and authorization.

The converged software also means new users can be up and working faster, and old users can be purged and discarded.

"When someone from HR enters a new user in our system, that user is automatically assigned an e-mail address in Lotus Notes, and access to databases and [Windows] NT systems," says Russell Medway, vice president of IT for an international financial services firm. "HR should control users, especially when they get fired. Provisioning should not be IT's job," he says.

Medway says his provisioning system works in reverse when an employee leaves the company. "Termination of an employee is the more important aspect," he says. "With everything more connected these days, security is the issue. When someone leaves the company, they can still have a back way in." Medway says his provisioning system, which is based on Business Layers' eProvision Day One software, automates the task of slamming all those doors.

Medway is automating what today is a costly, manual and inefficient task. It's a problem everyone wants to solve.

Provisioning has been around since the mainframe, but is growing in popularity along with heightened interest in directory technology and the diversity of net systems. And with Web-based applications becoming a corporate standard, access control systems are becoming a must to manage access to intranets and extranets.

But separately they only solve a piece of a complex puzzle of managing a user.

"The convergence is being driven by the need of a security enforcement component, the access management, which is part of a much larger user lifecycle management that includes creation, maintenance and deletion," says Mark Becker, vice president of the consulting services group at Syntegra. "Together, these tools make that process better, faster and cheaper with a higher level of overall quality."

> ***"Provisioning should not be IT's job."***
>
> Russel Medway, vice president of IT at a financial services company

But building the systems is complex, and they have been compared with metadirectories, with their sets of connectors needed to link systems. They also require rules that define the process of assigning access rights, as well as a workflow to carry out the process.

But here is help — at a price.

Last month, Deloitte & Touche introduced its identity integration service called identity Management, Authentication, Authorization Protection (i-MAPP).

"What was taking many administrators to create user IDs and provision resources is now automated," says Sean Peasley, a consultant with Deloitte & Touche. "We create a workflow so as soon as a person comes on board, rules activate the provisioning."

The i-MAPP system provides a single sign-on, a directory for storing user data and policies, provisioning and agent technology to integrate systems.

None of this comes cheap. Peasley says the price of the strategy and planning phase averages nearly $100,000. Access360 estimates that a system for 10,000 users can cost $200,00 to $300,000, including professional services. A similar system from Business Layers is nearly $430,000 without professional services and $860,000 with services.

"What you gain, however, is cost savings, a set of efficiencies, greater control and security," says Bill Martorelli, an analyst with Hurwitz Group.

Business Layers: www.businesslayers.com; Access 360: www.access360.com; Netegrity: www.netegrity.com; Securant: www.securant.com

Marketplaces,
continued from page 47

now participates in Straightload.com, FreightQuote.com and other sites that offer the ability to edit online and are proven successes.

But even a success rate does not guarantee much. Chemdex, a life science marketplace, was operational for four years before parent company Ventro closed it down. Chemicon International, which supplies antibody reagents to the biotechnology market, saw revenue in the six-figure range each year for two years from Chemdex.

But transactions done via Chemdex became a "double-edged sword," says Harley Cohen, database manager at the Temecula, Calif., company. "We saw sales flow through to us, but we were [not sure] if it was new business or it was redirected business" that already existed, he says.

Chemicon was also hit with a 5% transaction fee for each item it sold via Chemdex. Cohen says Chemicon now participates in SciQuest, which also charges a fee, although Chemicon is currently revamping its agreement. He declined to elaborate.

Like Hershman and Chemicon, Hunting Vinson hasn't been timid to participate in business-to-business marketplaces. The Houston oil piping distributor has been involved with PetroCosm, Network Oil, EnergyPrism and OilfieldCapital.com — all defunct marketplaces — and is in the development stage with TradeRanger.

Marketplaces will "work five years from now, but they don't work that well now," says John Feuerstein, a Hunting executive. "The marketplace concept is way ahead of the times, but time and technology has caught up with them," he says. In the future, marketplaces will have to focus on suppliers' needs, rather than buyers' needs, to attract a larger audience.

Scientific's Duncan says his firm would be hesitant about joining another marketplace.

Marketplaces "are ideal to purchase equipment," he says, "but the validity of an engineer to click onto a Web site and 'boom', expect the trucks, rigs and crew to show up in the jungle," isn't realistic. ◪

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'Net Insider . Scott Bradner

YOUR TAX DOLLARS AT WORK

Despite what some critics say, government-sponsored research continues to play an important role in our understanding of what's going on in today's Internet and in the development of tomorrow's Internet.

Private industry does not and cannot do everything by itself in spite of the billions of dollars of venture capital money that has been spent in the past few years on innovative start-ups.

A good example of the kind of work that might not be done without government support is a recent report by the University of California at San Diego's (UCSD) Cooperative Association for Internet Data Analysis (www.caida.net) on the prevalence of denial-of-service (DoS) attacks on the Internet.

The report (www.cs.ucsd.edu/~savage/papers/UsenixSec01.pdf), done in conjunction with UCSD's Jacobs School of Engineering, took a look at the electronic debris scattered all over the 'Net during the common types of DoS attacks. The aim was to see how often attacks occurred and what types of Internet nodes had been attacked.

In these types of attack, computers are programmed to send thousands of requests to Internet-connected nodes such as Web servers or routers. To make it hard to track down the attacking computers, the requests are sent with forged, usually random, source addresses. The servers then respond to the forged addresses, but since the addresses are randomly created there is nothing to receive the response.

Monitoring packets destined to nonexistent nodes and examining their source addresses can reveal which systems were under attack and for how long.

The UCSD researchers found evidence that more than 12,000 DoS attacks occurred during the 3-week period when they collected their data. Most of these were on Web servers.

About 5% of the attacks were on Internet infrastructure systems such as routers and domain name servers. The latter are worrisome and underline the fact that ISPs must take care to architect their networks with such attacks in mind.

It should be noted that the attacks studied were not the high-profile ones on Yahoo and Microsoft, but those that went unmentioned in the press. A number of the attack targets turned out to be home computers connected via cable modems or DSL.

This is useful information that helps us understand more about these types of attacks and may help protect against them. Information like this is unlikely to have been gathered by industry. Even if such information were gathered, it is unlikely it would have been distributed as this study has been.

We, as a country, need to continue to strongly support government funding for basic research. One percent of the cost of a new aircraft carrier might do a lot more to protect our electronic infrastructure than all the planes that an aircraft carrier could handle.

Disclaimer: Harvard does lots of government-supported research, so my guess is that it would support this opinion. But I didn't ask.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

Novell,
continued from page 48

be installed in any of 21 languages. Aside from a brief "read me" text file, the bulk of the documentation uses PDF files. Also included are planning guides, which detail how to plan for a new system or a step-by-step guide for upgrading. It makes it very easy for you to lay out a timeline catered to your own installation.

When it comes to features, GroupWise can go toe-to-toe with Exchange anytime.

Once you're ready, upgrading from older versions to GroupWise 6 is very straightforward. GroupWise 6 can pass messages back and forth between older versions. The primary domain must be upgraded first. Then, other domains and Post Offices can be upgraded on your schedule. As before, newer POAs can communicate with older clients, but not vice versa. This lets you upgrade clients as time permits.

Conclusion

If you are a current GroupWise user, this upgrade will be a good one. We would recommend it for the enhancements to Web Access and the Wireless Server alone. If you've already upgraded to NetWare 5, there's nothing stopping you. And if you're running your agents on Windows NT or 2000, you had nothing to worry about anyway.

Can GroupWise finally chip away at the dominance held by Exchange? The features, cross-platform support and scalability all seem to be positive indicators. Novell has built it, will the users come?

Berkley is the LAN support supervisor at the University of Kansas. He has been a GroupWise administrator and beta tester for over eight years. He can be reached at berkley@ukans.edu.

NetworkWorld GLOBAL TEST ALLIANCE

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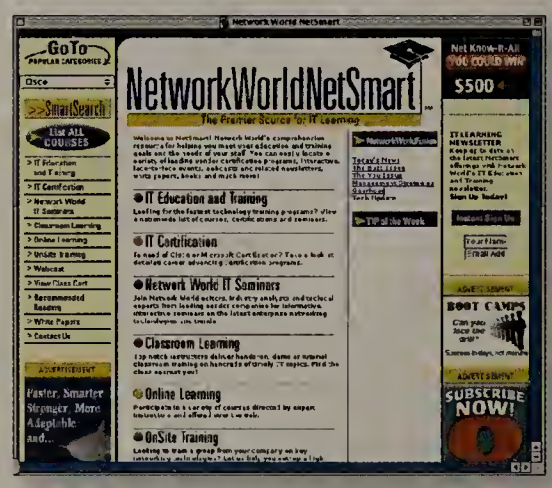

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Pushing transactions to the edge

BY MICHAEL JACKMAN

In a typical Web site architecture, supplying accurate information at all times requires companies to use a single master database for an application.

Because transaction requests must be processed at the core site of a global architecture, a transaction-processing bottleneck is inherent in these Internet-based architectures. Any large spikes in traffic cause bottlenecks at the database layer regardless of good performance at the Web-servicing layer.

Edge transaction accelerators provide the ability to globally distribute transaction processing. This eliminates the transaction-processing bottleneck, thus minimizing site response times and increasing site throughput.

Distributed transaction processing offers significant advantages to large organizations that already have distributed legacy-processing systems. In many cases these applications are already regionally distributed. Edge transaction accelerators allow the creation of content concentration databases, which can be distributed at regional points around the enterprise network architecture.

Content from regionally distributed legacy systems can be collected at several of regionally distributed content concentration databases. By leveraging database replication to distribute data across the concentration points and leveraging edge transaction accelerators to manage distributed transaction access, data can be distributed efficiently with write transactions from anywhere on the ring directed to the appropriate concentration point.

Leveraging edge transaction accelerators has the effect of creating a logical partition. Data is accessible from anywhere, but users' transactions are usually processed at the closest geographic point. For example, a European user's request would be processed in a European data center, resulting in the same type of performance acceleration for transactions that content delivery networks deliver for static content. If another region owns the key, say when a European user chooses to update a U.S. record, that transaction may be processed in the U.S.

Currently, globally distributed Internet architectures are optimized for serving static content. Content delivery network providers cache static content at multiple points of presence providing fast access and distribution of static content load to the POPs. This architecture is challenged by the shift in content from static to dynamic. The description of "dynamic content" is HTML generated by application servers executing business logic. Generation of this HTML is resource-intensive and currently located in centralized data centers, exposing end users to a large number of network hops and slow response times due to heavy loads at the central site.

As transaction loads increase in a typical Internet-based architecture, companies face one of two choices: purchase faster, more expensive database servers that can handle the load; or rewrite applications to utilize additional databases.

The first choice is the one most commonly employed by large companies. The main drawback with this choice is that rapidly increasing Internet traffic means the new database is quickly outdated, and companies are left with the same choice again. This places them in a cycle of purchasing where they are continually losing money on rapid hardware and database software price depreciation. The second choice is extremely expensive and time-intensive, and is a large risk. Rewriting an application introduces software bugs and risks the viability of business-critical resources.

Edge transaction accelerators read Internet application requests to determine what objects are being sought. Once the edge transaction accelerator identifies the object, it checks the object for data dependencies in much the same way an application server determines what application server process to trigger. Edge transaction acceleration utilizes an object management application to retrieve data dependency information for each request and synchronize multiple application servers to multiple active database servers.

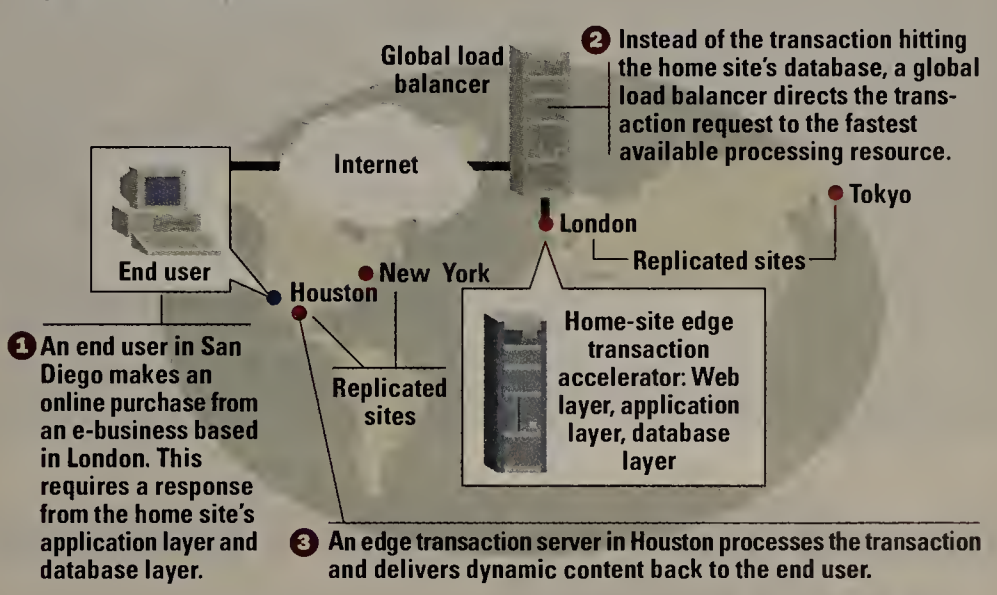
The ability to use multiple active databases increases the processing power of the database layer and the transaction throughput abilities of the site, while minimizing the response times for clients' requests. Companies can easily add additional active databases to meet increasing Web site traffic or just to enhance overall site performance, thus providing unique scalability to the application and database server layers of their sites. The database for one application cluster can act as the back-up database for another application server cluster, allowing a level of site redundancy and failover equal to the number of application/database server clusters at the site.

Jackman is executive vice president of global sales and marketing at Warp Solutions. He can be reached at mjackman@warpsolutions.com.

HOW IT WORKS

Edge transaction accelerator

An edge transaction acceleration architecture distributes transaction-processing capabilities to edge servers.



Ask Dr. Intranet

By Steve Blass

Our company developed an intranet, and we would like to have a page that is structured as a form for our Support Services division. The form should be used to make supply requests to the supply manager and have the request look exactly like a form (through e-mail); and allow for this same page to act as a form for an Access database that holds all our inventory information. We could set up the Web page to look like a form, and also to have it sent to the proper manager using SMTP; but the e-mail doesn't resemble a form, it looks like a jumbled string of words.

You need to insert some mail headers before the beginning of the message body that tell the recipient's mail client to display the message as HTML rather than plain text. The headers you would add look like:.

MIME-Version: 1.0

Content-type: text/html

Content-Transfer-Encoding: 7bit

To send the results of a form submission in an HTML mail message that looks like the original form, you have to actually reproduce the form with the submitted values filled in and then e-mail that to your recipient. This is because all you get at the Web server from a form submission is the set of name=value pairs from your input fields.

Blass is a network architect at Change@Work in Houston. Send questions to dr.intranet@changeatwork.com.

Gearhead . inside the network machine . Mark Gibbs

COOL GRAPHICS IN XML

The entire universe is going XML. Everywhere you turn, somebody is turning something into XML. This is, as Ms. Stewart is wont to say, "A good thing."

The beauty of XML is it provides a whole new way of structuring "stuff" that goes beyond just organizing data. With XML, data is imbued with meaning and purpose . . . wait a minute, that implicitly makes it information. Cool.

Today, we'll look at one of the latest and most promising applications of XML — Scalable Vector Graphics (SVG).

SVG is currently a W3C Candidate Recommendation (see www.w3.org/TR/SVG/) under the name "Scalable Vector Graphics (SVG) 1.0 Specification" and dated Nov. 2, 2000. The abstract of the specification summarizes SVG as "a language for describing two-dimensional vector and mixed vector/raster graphics in XML."

Sounds pretty dry, doesn't it? In fact, SVG is terribly exciting if you're inclined toward trying whiz-bang graphics on the Web. If you're not, SVG is cool anyway.

The reason for such coolness is what SVG can do. Quoting the W3C specification: "SVG allows for three types of graphic objects: vector graphic shapes (e.g., paths consisting of straight lines and curves), images and text. Graphical objects can be grouped, styled, transformed and composited into previously rendered objects. The feature set includes nested transformations, clipping paths, alpha masks, filter effects and template objects. SVG drawings can be interactive and dynamic. Animations can be defined and triggered declaratively (that is, by embedding SVG animation elements in SVG content) or via scripting."

SVG has a document object model that provides access to all elements, attributes and properties in an SVG graphic document. There are also event handlers such as the ever-popular "onmouseover" and "onclick."

SVG's MIME type will be "image/svg+xml" when the W3C registers it as such — apparently around the time when SVG is approved as a W3C recommendation (no date set). The specification also recommends that SVG files should have the extension ".svg" (all lower case) on all platforms.

OK, enough of the dry stuff. Let's cut code! Here's an example of an SVG document:

```
<?xml version="1.0" encoding="iso-8859-1"?>
<!DOCTYPE svg PUBLIC "-//W3C//DTD SVG 20000303 Stylable//EN"
"http://www.w3.org/TR/2000/03/WD-SVG-20000303/DTD/svg-20000303-stylable.dtd">
<svg xml:space="preserve" width="3in" height="3in">
<text style="fill:blue;" y="15">Gearhead was here.</text>
<text font-family="serif" font-size="12pt" fill="black"
x="0" y="0"
transform="rotate(-90) translate(-100, 180) scale(1.5, 1)">
Cool.
</text>
</svg>
```

To see what this code does, install the Adobe SVG viewer (it's free and at www.adobe.com/svg/viewer/install/main.html) in Internet Explorer. Next, put the above code in a file called test1.svg and load it into your browser.

Next week, we'll explain what's going on. Revelations to gearhead@gibbs.com.

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Opinions

FACE-OFF

Do IT workers need a union?

Do unions offer strength in numbers or undermine individual autonomy? Two groups debate the issue.

YES BY MIKE BLAIN

IT workers should form a union for the same reason that workers have always formed unions: together we have more power to improve the terms and conditions of our employment than we do as individuals.

But if you are any good, you shouldn't have any problems with the terms or conditions of your employment, right? If you work hard and keep your skills up, you will be treated fairly and be highly compensated.

In some cases it works out that way. But in many cases, years of 60-hour weeks and taking classes on your own dime to keep up with technology leave you in the unemployment line, after being laid off with no notice. In other cases, you may be the best contract XML programmer around but still find yourself coerced into signing lopsided noncompete agreements imposed by staffing agencies to obtain employment. Or you may be content with your current job but tired of legislative attacks on overtime pay — attacks that single out hourly computer workers for exemption from labor laws.

RICK DAHMS

In each of these examples, your negotiating power and your ability to affect change is limited. Individual workers rarely are able to negotiate the terms, timing or notification of layoffs. Union workers under contraet almost always can. By organizing under the Washington Alliance of Technology Workers (WashTech), Amazon.com customer service workers who had not yet bargained a contract were able to pressure the company into giving more than 500 laid-off workers one of the best severance packages in the industry.

At Microsoft, individual "permatemps" asked their agencies for several years for better medical plans and greater employer co-pays. Those requests always fell on deaf ears — until they began organizing under WashTech. Through collective action, WashTech members highlighted the workplace and benefit coverage issues facing long-term contractors and pressured Microsoft and the agencies to take action. Within a year, thousands of workers obtained improved benefits.

When it comes to training, many employers are reluctant to invest any money in improving skills of employees who may then jump ship. In some cases, economics make it difficult for employers to invest in training. But in many cases, it is plain short-sightedness. Through partnerships with employers, and their own training programs, unions can provide workers with access to high-quality, affordable training, no matter what their employment situation.

Finally, by joining a union, you become part of a larger community of workers committed to helping and supporting one another. You have a resource to contact when you have questions about contracts, overtime laws or even the ins and outs of various stock option plans. And, as clichéd as it may sound, you have a voice, a collective voice that cannot be ignored.

Blain is president of WashTech, a Seattle affiliate of the Communications Workers of America. He can be reached at mblain@washtech.org.

NO BY HARRIS MILLER

Unions have their purpose in industrial society, especially in businesses in which there are clear distinctions between labor and management, and many employees are "lifers." But signing away bargaining power to a union boss is against the interest of today's highly skilled, highly mobile high-tech workers.

Today's high-tech workers are in the driver's seat. The demand for technical workers with the skills to drive the New Economy remains high, despite the current economic slowdown. According to a recent study by the Information Technology Association of America (ITAA), this year hiring managers in IT and non-IT companies will attempt to fill more than 900,000 new IT jobs. Of those, about 425,000 jobs will go unfilled due to a lack of qualified workers.

A major reason union membership lacks appeal for these workers is that they are in such great demand in a tight market. This demand creates high salaries, unique job opportunities and extraordinary benefits such as flexible hours and four-digit bonuses for referring other qualified workers. In these favorable conditions, the union promise of job security is not of interest. High-tech workers' skills are the best job protection for them.

Tech workers are not interested in voting on contracts that put them on equal financial footing with others with the same seniority. They are as driven by intellectual challenges as they are by compensation. They like to be part of the management team, and often share the same perquisites as the so-called higher ups, including stock options. Technology organizations tend to be flat, with few indicators of who is management and who is not.

If technology workers are not happy with their working conditions or lack of intellectual challenge, they vote with their feet. Mobility is the hallmark of a skilled techie. The ITAA's study found that hiring managers in IT companies expect the average technical support worker to stay on board a mere 22 months before moving on to greener pastures. In non-IT companies, these experts are expected to peel off after just two and a half years. The plethora of hiring organizations available — almost 14,000 IT companies and 305,000 non-IT companies, according to the ITAA's study — affords them flexibility and innumerable workplace options.

Technology workers believe in themselves and their abilities. They do not want union-dictated seniority systems; they are individualistic and want to get ahead on their own merits. Many techies choose to be consultants or independent contractors, rejecting a single employer, let alone a union card.

Unions have their place. But for today's high-tech workers, union membership would minimize job flexibility, reduce the ability to negotiate wages and stifle the creativity that has made the U.S. IT industry the world leader. High-tech workers have consistently rejected efforts to organize them and will continue to frown upon unions as a useful or desirable move.

Miller is president of the ITAA, a trade association representing the U.S. IT industry. He can be reached at hmiller@itaa.org.

www.nwfusion.com

TALK BACK

Log on to Network World Fusion to register your opinion. Mike Blain of WashTech and Harris Miller of the ITAA will add their thoughts to the discussion.

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Editorial

Which megacarrier will live to tell the tale?

Ultimately there will only be three to five megacarriers in the U.S., according to Joseph Nacchio, CEO of Qwest Communications, who spoke at Vortex, the vendor conference in Southern California two weeks ago.

He likens the market today to the early days of the railroad and auto industries, when there were a plethora of manufacturers. The bulk of them were consumed by more successful players along the way, leaving only a handful of strong companies.

In that environment, Nacchio said what matters most is scale and scope. That's what convinced him to buy US West.

Although it was heretical at the time, "we thought it was a good idea to have customers and revenue," he said, getting a laugh from the audience. The move looks brilliant in hindsight, given the relative strength of the Baby Bells compared with the rest of the market.

So who will live to become a megacarrier? Not AT&T or WorldCom, Nacchio said. AT&T has dug itself into a hole with this breakup business and is on its way out, and WorldCom is struggling and may ultimately get acquired.

Qwest? "We have a shot," he said, although not with his usual braggadocio. "We're a midsize player now, too big to be small and too small to be big. Something will have to happen."

Exactly what needs to happen, he won't say. But clearly he has some merger/acquisition fairies dancing in his head.

Asked if he would break up AT&T if he was at the helm of the company he was forced out of, Nacchio said, "Inside I'm still an AT&T guy. This breakup stuff is a shame. They have all the right pieces. No, I wouldn't break it up."

On the local exchange front, Nacchio said US West is now "fixed." The company was undercapitalized, and installation delays and the like are now minimal.

With those problems resolved, Qwest can now turn its attention to new business. Nacchio expects to file Section 271 applications to enter long-distance in each state of the former US West 14-state region by late in the fourth quarter, and to actually offer long-distance in those states by mid-2002.

Nacchio clearly relishes the opportunity the market has presented and is having a ball. Given his track record, it wouldn't be surprising to see him swallow a big fish and live to run a megacarrier.

— John Dix
Editor in chief
jdix@nww.com

Message Queue

Dealing with DSL

Regarding the feature "DSL disappointments" (www.nwfusion.com, DocFinder:4448): The problems of DSL customer service and installation nightmares are well known. Any network manager proposing DSL needs to be made aware that his credibility is on the line.

Solid alternatives such as frame relay and PPP abound. And costs for these technologies are dropping all the time. My local DSL providers are announcing large losses and layoffs. We don't have a single vendor representative pushing DSL. Why buy the worst product available from the worst companies in the industry? Go with what works; the bucks (and butt) you save could be your own.

Bill Kemp
Network analyst
Baptist Health Care
Pensacola, Fla.

I'm sick of people whining about DSL. It's boring, repetitive and nonproductive. I don't understand why so many people think they can demand perfect service and bargain-basement rates. News flash — the companies that tried to meet that demand are going broke. Doesn't that suggest that there are some unrealistic expectations in play?

The fact is, over the long term, you will always get exactly what you pay for. If you need decent service, then you had better be willing to pay the price for it (that is, leased lines). If you want the cheapest Internet service possible, then it's reasonable to expect that you will have to put up with the cheapest customer service as well.

Andrew Bell
Peterborough, Ontario

Praise for Pilot workers

Regarding "Demise of Pilot seen as blow to outsourcing" (www.nwfusion.com, DocFinder: 4449): I'd like to commend the dedicated former Pilot Network Services employees in security and operations who kept the company going until literally the last minute. Security was maintained throughout the time period from April 25 until everything was shut down. Operations assisted my customers in the transition in an outstanding manner.

Pilot's abrupt exit and the hope of the almost 100 customers that were left in the lurch was perhaps a reflection on how difficult it is for risk takers in the e-commerce economy to forecast future profitability in these times. A new company had expressed an interest in keeping the Pilot going; unfortunately, it was too risky for them.

Frank Swift
Alameda, Calif

Roadrunner runaround

Regarding "Cable service stays at home" (www.nwfusion.com, DocFinder: 4450):

I have AT&T Roadrunner cable-modem service at home. Recently my home connection was out for three days. I called on the first day, and after 20 minutes on hold, I was told a technician would be dispatched — in two days — to replace my cable modem. I asked if they could dispatch a tech to check on the upstream equipment, and they said they didn't consider one report of a problem an "outage," and that three people from the area would have to complain before they'd look into it.

The next day I talked to a neighbor whose service was also out, confirming my suspicion that my cable modem was not at fault. I called AT&T back to make sure the tech they were dispatching was able to resolve upstream problems as well as replacing a cable modem. After another 20 minutes on hold, I was assured he would be able to do so.

When the tech arrived, over 48 hours after the original call was placed, he determined that the problem was upstream and that he couldn't fix it; another tech would be out "within 24 hours." Then he tried to talk me into adding premium channels to my cable TV service.

If this is typical of the service AT&T offers, there's no way I could recommend it to any of my customers.

Tom Blakely
Vice president, technology support
Open Systems & Networks
Jacksonville, Fla.

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

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In the Works . Paul Hoffman

POWER CONCERNS DRIVE MANY BUSINESSES TO COLLOCATION

You don't have to live in California to be concerned about power disruptions. Although companies in California are more likely to be hit with blackouts sooner than those located in other parts of the country, there are predictions that this summer is likely to bring more power disruptions nationwide than previous years.

If your company's primary Web and/or mail server are in your company's IT headquarters, you would be well-advised to think about how a power outage would affect your Internet presence. Even if your company has good power back-up systems, you may not be in the clear. Your ISP also has to have good back-up systems, and so does everyone responsible for getting the data signal to your facility. As some Californians have discovered recently, even if the power is on at your company, your Internet connection might be dead due to power problems at the ISP or telephone company.

Would your company be seriously hurt if your corporate Web site or mail server were down for a few hours? If so, you should consider moving these servers to a collocation facility and managing them remotely. There is an increasing number of collocation facilities that let you put your servers at their premises or let you rent servers from them at fairly low prices. These facilities usually have much better power management than most companies install themselves and often have highly redundant Internet connections to help reduce problems associated with ISPs being unavailable.

However, moving your Web and/or mail servers to a collocation facility to mitigate power and ISP problems is not always worth it. You can't babysit the machine locally, which is sometimes very useful, particularly if your servers are running operating systems or software that are prone to crashing. You can use remote-control software, but some parts of the operating system and some programs insist on putting output directly on the system console, which might not be visible in the remote-control program.

Furthermore, collocation facilities are not always as well prepared as you would hope. Last month, Exodus Communications lost power to one of its collocation sites and its back-up generator failed, causing much of Yahoo (which is collocated at Exodus) to be unavailable for hours. Every collocation site will tell you it tests its back-up power, but many don't check well enough. Similarly, if one route for the collocation facility fails, you have to rely on the facility's technicians to be alert and adept at rerouting; fortunately, this is not much of a problem.

If your company doesn't have back-up power generators and at least two Internet connections from different ISPs, consider taking a look at collocation before the summer power outages hit. If your Web and mail servers need lots of local attention, moving them to more reliable facilities might give you more uptime and, therefore, more peace of mind.

Hoffman is director of the Internet Mail Consortium and the VPN Consortium. He can be reached at phoffman@imc.org.

Yankee Ingenuity . Howard Anderson

FIXED WIRELESS — OR FIXED STUPIDITY?

They are dropping like flies. Fixed wireless companies were supposed to be a juggernaut, a force, a new trend that was going to bring competition to the local loop. Brilliant people, marvelous technology — what happened?

Advanced Radio Telecom? Bankrupt. Teligent? Bankrupt. Winstar Communications? Bankrupt. Anyone detecting a pattern here?

Then there was the unlicensed spectrum play. The idea was, why pay a fortune for spectrum when you could use the spectrum in the 2.4-GHz and 5-GHz ranges for nothing. Sure, other carriers could use this spectrum as well, but wouldn't this be great for the 21 million households that have two phone lines and would like Internet access at high speed? Plus, weren't there some great providers of 802.11 technology coming into the market (Cisco, Nortel Networks, Breezecom)?

Then reality pays a visit. Using fixed wireless in competitive local exchange carriers just isn't working in the U.S. The concept might work overseas — in the Third World. Or it might work in residential situations — but that residential customer is soon going to become as demanding as the business customer. Yes, cable providers are pulling back from their cable modem pronouncements, and with some local exchange carriers you may not see DSL in your neighborhood until the 100th anniversary of the last Red Sox World Series win (1918). Still, fixed wireless is a technology looking for a market.

Football coaches sometimes say, "We never lost a game, but sometimes the clock ran out." Fixed wireless executives say, "We really didn't go bankrupt; we just ran out of money."

YÜCEL

What went wrong?

First, for businesses, fixed wireless is considered less than reliable. There are 7.5 million small businesses in the U.S., a market that fixed wireless was going to help by offering exceptional service at a lower price. In the end, the fixed wireless industry provided neither.

Second, the best use of a fixed wireless system for large companies was as a back-up system. Why trust Verizon or BellSouth never to go down when for a small investment you could at least hobble along with a fixed wireless solution. Nice idea, but not enough to build a business on.

Third, the money ran out. The amount of debt by the world's carriers has gone from $255 billion in 1998 to more than $700 billion today. All that nice equipment-leasing money has evaporated. The junk bond boys seemed unable to raise cash for the fixed wireless industry.

Look at Teligent. Management: Alex Mandl, a bankable man. Investors: Microsoft, Liberty Media/AT&T, NTT. Money raised: $2.6 billion. Current status: unable to raise another dime.

The government's telecom policy from 1968 to 1995 was to encourage competition in long-distance. Mission accomplished. The government's policy from 1995 on was to encourage competition in the local loop. Mission aborted. Fixed wireless was supposed to be a neat-o way to provide services to businesses and residences without digging up every street in every urban center. The idea was to "hop" to key buildings and use the risers in the buildings to deliver services to businesses on each floor — in other words, instead of coming in through the street, attack by air.

Nice thought; bad execution. I bought into the idea and signed a contract with Winstar. The network crashed — and Winstar had no idea what was wrong. This is a company that one year ago carried a market cap of $10 billion and today is worth zero. The idea at Winstar was to get big fast, believing that AT&T, WorldCom or one of the European carriers would acquire the company because it had solved the "last mile" problem. Did Winstar have a management problem? The damn company was a children's crusade: completely clueless.

The morning after my network crashed, I called Verizon — by cell phone, of course — and begged them to please, please take me back.

Fixed wireless: the not-ready-for-prime-time solution.

Anderson is senior managing director of Yankeetek Ventures, a Cambridge, Mass., early-stage venture capital firm. He is also founder of The Yankee Group and the William Porter Distinguished Lecturer at the Massachusetts Institute of Technology. He can be reached at handerson@yankeetek.com.

TALK TO ME

Speech recognition software is starting to make noise.

BY IAN LAMONT

Customer service at AirTran Airways has come a long way in the past few months. Prior to this year, if you called the airline — which operates about 300 daily flights, mostly on the East Coast — to find out about flight availability or to check flight delays, chances are you would have waited for an average of 7 minutes before your call was picked up by a call center representative. It would have taken an additional 2 1/2 minutes for the AirTran staffer to handle the call.

If you make a similar call today to AirTran, you would be put through in about 2 seconds. And your question would be answered in just over a minute, on average.

The reason for the dramatic reduction in customer handling times — and associated costs, such as 800-number toll charges — is speech recognition.

After years of hype and false starts, automated speech recognition (ASR) technology is ready for prime time. The trend has become apparent in the customer service arena, especially in the airline industry, which has been one of the most enthusiastic adopters.

Forget listening to Muzak for 5 minutes while waiting on hold, or making choices by punching strings of numbers on the telephone keypad. Several carriers — including AirTran and United Airlines — have shifted the burden of relaying flight information stored in databases from customer service representatives to automated systems which respond to customers' voices.

"As an organization, we understood the significant revenue and efficiency gains available to those which offer speech-enabled services to enhance consumer lifestyles and dramatically surpass the current limitations of touch-tone technology," says Rocky Wiggins, AirTran CIO.

Besides reducing wait times and cutting 800-number toll costs, he says the new ASR system has allowed the airline to transfer its 650 call center employees to sales initiatives, customer retention duties and "countering competitive initiatives." It has also boosted morale, he adds.

Other applications

GMAC Mortgage and others have adopted voice-controlled switchboards, which let callers access telephone extensions and voice mail by speaking a name or department. AOL, Yahoo and others are promoting informa-

ILLUSTRATION: MACHELLE BARBERA

Talking the talk

How does voice recognition work in the real world? Network World tested Airtran Airways toll-free information hotline (800 247-8726, press 1) to find out. The system, which uses a female voice to interact with callers, was very smooth overall and understood practically everything it heard. In the end, a deliberate error on the part of the caller prompted the system to pass off the call to a human representative. Here's a transcript of the dialog:

Airtran: Welcome to Airtran's flight information system. If you've never called before, say "instructions." Do you know the flight number?

Network World: *No.*

Airtran: OK. Do you want arrival, or departure information?

Network World: *Departure.*

Airtran: Great. What's the departure city?

Network World: *Atlanta.*

Airtran: Thanks. And the arrival city?

Network World: *The Big Apple.*

Airtran: I'm sorry, I didn't understand. What's the arrival city?

Network World: *New York.*

Airtran: I need to know which airport you specifically want, because Airtran serves more than one airport in New York, New York. They are LaGuardia and Newark International. Which do you want?

Network World: *Newark.*

Airtran: Thanks. Is it departing Wednesday, Thursday, or Friday?

Network World: *Monday.*

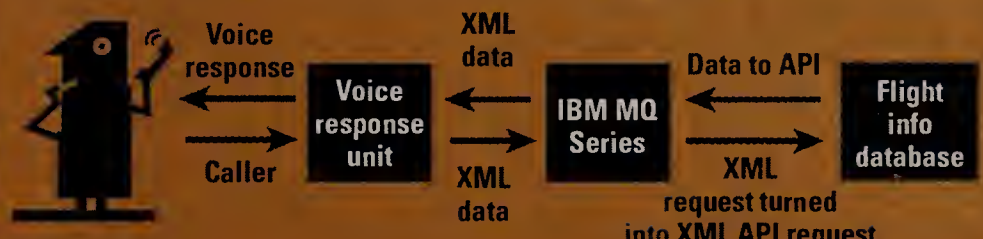
Airtran: Sorry, I don't have flight information for Monday. I only have information for Wednesday, Thursday, or Friday. If you need schedule information, say "reservations."

Network World: *Reservations.*

Airtran: Please stay on the line while I transfer you to one of our customer service agents.

Earth to AirTran

Callers to AirTran's reservation system converse with a voice response unit that can collect information from the flight information database.



tion-by-phone services, which let users access stock quotes, news headlines and even e-mail.

"There are numerous applications for speech recognition that will fuel this market over the next year," predicts Elizabeth Herrell, research director at Giga Information Group. Besides automated switchboards and voice content providers, she expects "voice-activated car clients" that can give driving directions based on voice commands.

Herrell notes that the accuracy of ASR technology has improved to the point that users can use natural speech, rather than stilted menus. "[This] will result in increased market acceptance of speech technology in both business-to-business and business-to-consumer applications," she says.

Larry Whitehead, CTO of voice content portal Audiopoint, says a proper mix of functionality and ease of use is crucial. "We believe the user interface is absolutely the most important challenge," he says. "If the first experience is poor, you have lost the caller forever. But, for the power user, if the service is slow and cumbersome, you will lose that caller as well."

SpeechWorks, a major player in the voice-recognition market, realizes the importance of its text-to-speech product sounding "natural." One of its products, Speechify, is used by AOL and Yahoo to read users' e-mail messages over the phone. "Everyone has always wanted that app," says Steve Chambers, a SpeechWorks vice president. "But the quality of the text to speech never really supported such rigorous use. It wasn't quite as natural sounding as people wanted."

Accuracy is also vital to building trust, Chambers says. SpeechWorks' flagship voice-recognition product, SpeechWorks 6.5, has achieved between 97% to 99% accuracy in major customer deployments, and a total of 18 languages are supported.

Chambers estimates that automated customer service can result in dramatic cost savings: Industry averages are typically 30 cents to 45 cents per minute for automated systems, compared with $3.50 per minute for agent-assisted calls. "If we can get our needs met with an automated system and not a live agent, it's far cheaper," he explains, citing reduced staffing costs and shorter toll calls as the main savings points.

Still, the initial cost of deploying ASR technology is daunting for many organizations. Chambers says SpeechWorks 6.5 typically costs between $500 to $1,500 per port for installation, while Speechify costs roughly $650 per port.

Giga's Herrell says cost may discourage all but the largest companies from purchasing speech recognition technology. However, she points to hosted voice services as an option for midsized firms.

Hooking up the back end

William Meisel, president of TMA Associates, a speech industry consulting firm, identifies another obstacle to voice-recognition deployments: "The biggest barriers [include] the perception that creating such applications takes talents that corporate IT or telecom departments don't have," he says.

Implementing ASR is not simply a matter of installing an off-the-shelf application. For AirTran, it took eight months of evaluation, coordination and "tuning" before the first call could be handled in January.

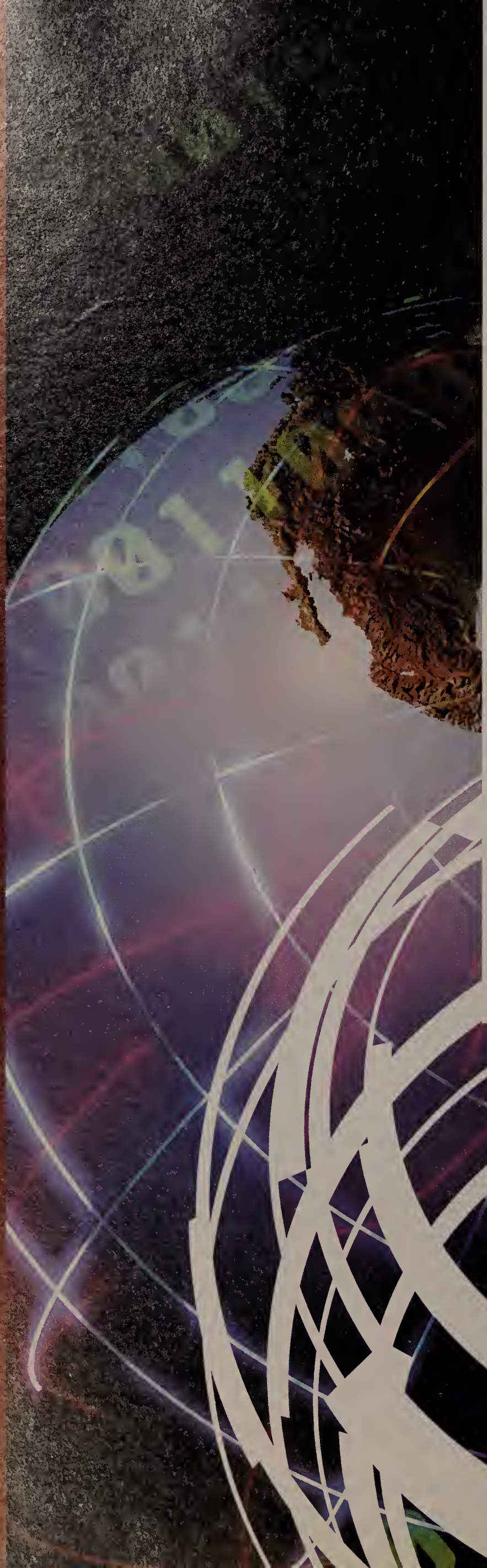
"One of the most difficult deployment tasks, directly correlated to the project's overall success or failure, was the integration of this new technology within an existing infrastructure composed of legacy systems, disparate databases, nonstandard platforms and an enterprisewide technology upgrade and replacement initiative still in process," AirTran's Wiggins says.

The project began in May 2000, when AirTran contracted SpeechWorks and CommerceQuest, a Tampa, Fla., firm specializing in the integration and deployment of IBM MQSeries and XML technologies. SpeechWorks developers and speech scientists worked with staff from AirTran's reservations, customer service and marketing departments to create a series of "call-flow dialog modules," which, when paired with voice queries, could lead customers through the process of getting information about flight availability and schedules.

Meanwhile, AirTran's telephony specialists and systems administrators worked with CommerceQuest to identify the integration points within the airline's databases. The application call flow (see graphic, above) is controlled by SpeechWorks InterVoice/Brite NSP-5000 Voice Response Unit (VRU). After arriving at the VRU, the caller's request is turned into an XML document and sent to the MQSeries server on the outbound message queue. Via MQSeries APIs, AirTran's Bornemann FliteTracDB is queried for flight information. The response takes the reverse path and sits on the inbound message queue at the VRU until the phone line number that initially sent out the request removes it. If a reply is not received within 5 seconds, the VRU will time out, and the caller will be transferred to a customer service agent.

But there are still some bugs to be ironed out. AirTran's automated flight information system responds quickly, but caller interaction is not yet as seamless as speaking with a real person. SpeechWorks and CommerceQuest are still fine-tuning the system.

Nevertheless, ASR technology has passed out of the realm of science fiction and is making inroads in corporate America.



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Feature

TIRE RECALL FLATTENS FIRESTONE'S WEB SITE

BY SUZANNE GASPAR

At an 11 a.m. press conference last Aug. 9, Bridgestone/Firestone announced a voluntary recall of more than six million tires, triggering a deluge of hits on the company's Web site, www.firestone.com.

Alan Lindsey, manager of network services for the e-commerce department at Bridgestone/Firestone, says the site was geared up to handle several times the typical amount of traffic. But he never anticipated that hits would reach 100 times the normal level, and he was unaware that CNN had broken the recall story the night before the press conference.

"People were waking up, checking the news and hitting the Internet," Lindsey says. The announcement generated so many page requests that the company's Web server, based at headquarters in Nashville became overloaded. Response times slowed to a crawl.

A protocol analyzer revealed that between 8:30 a.m. and 10:30 a.m. only 20% of end users were getting through to the site; the other 80% had their connections time out.

"It was very difficult to estimate that and plan ahead to provide that kind of bandwidth," Lindsey says. "Even if you did, having that all come in to one site would still not give us the kind of advantage of being able to disperse content closer to the user."

Around 10:30 a.m., IT made the first of several calls to Mirror Image, a content-delivery services provider Bridgestone/Firestone talked to before the tire recall. For several months, IT had been researching various Internet technologies for streaming audio/video and voice over IP, and was impressed with Mirror Image.

Company turns to content-delivery services provider to increase mileage of origin Web server.

At lunchtime, typically a busy period for Web activity, traffic spiked at the Bridgestone/Firestone site, Lindsey says, and performance got even worse.

Negotiations with Mirror Image continued into the afternoon, and as the evening rush hour wound down, Bridgestone/Firestone gave Mirror Image the green light to move forward with caching the corporate site, even though the Mirror Image service was still in beta.

Lindsey says IT worked with Mirror Image for the next few hours to change the code on the Web site, and by 10 p.m., www.firestone.com was back up and ready for anything.

He adds that the technical requirements were relatively simple. "We had to change code on our Web page and make some DNS changes, upload the information to one of their servers and that was it. That information was replicated to the rest of the Mirror Image content access points."

The way Mirror Image's instaContent services works, www.firestone.com serves all the static content on its main Web page directly to the end user. Graphical objects are served up from whichever of the 22 Mirror Image content access points is closest to the end user.

Putting content as close to the customer as possible results in quicker response times, says Len Harrison, director of IT infrastructure for Bridgestone/Firestone.

Reports from Mirror Image on the first few days' activity showed that content availability was in the 99% range and user response time was averaging about 3 seconds.

The reports also showed that at some of the busier sites — Washington, D.C., Chicago and Los Angeles — response times were 5 seconds and availability was 98%.

Monitoring the situation on its end, Mirror Image tuned its network to handle the higher load at those locations, says Bob Hammond, senior vice president of technology planning and corporate development for Mirror Image Internet.

Bridgestone/Firestone declined to say how much the Mirror Image services cost, but pricing is based on megabits of data delivered to customers.

Each content access point consists of about 500 square feet of collocation space, typically housed with Web hoster Exodus.

For Mirror Image, adding capacity is easy. IT simply walks into any of the 22 buildings to slide in another box, Hammond says.

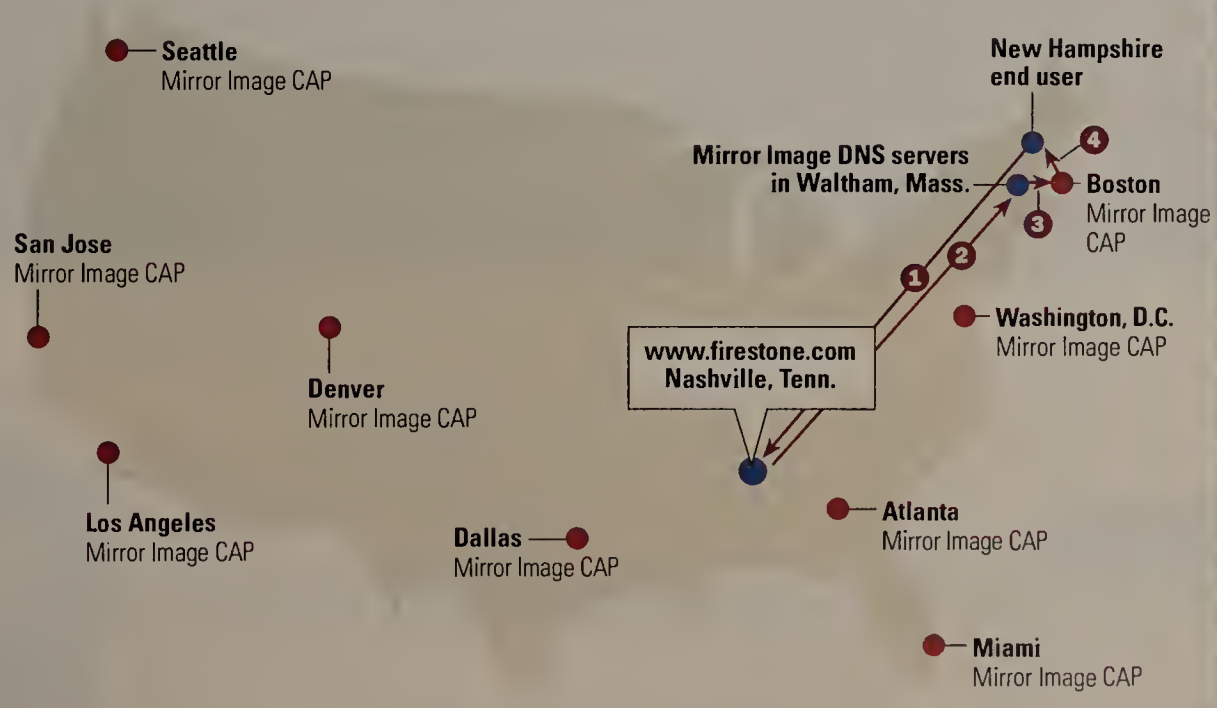
While more than six million tires have been replaced since the recall was announced, traffic at www.firestone.com remains at 50% above normal. Looking back, Lindsey says providing the scalability and the bandwidth in such a short amount of time would have been difficult without Mirror Image.

"If we had to order additional Internet pipes or tried to move the site somewhere else, we would have probably been looking at several days of downtime vs. 12 hours," he adds. ◪

Where the rubber meets the road

Bridgestone/Firestone's Web site delivers static content, while dynamic content is served by the optimal Mirror Image cache.

1. **New Hampshire end user's browser contacts www.firestone.com, which serves static content back to the end user.**
2. **Requests for dynamic content are routed to Mirror Image DNS servers in Waltham, Mass.**
3. **Mirror Image DNS servers determine which content access point (CAP) can deliver dynamic content the quickest.**
4. **The optimal Mirror Image CAP forwards the cached objects/graphics to the end user.**



Content access points include:

- 20 CPU Sun 6500 servers or two HP eight-CPU servers running Oracle 8.1.7 server
- Two disk cabinets for disk drives
- Two Cisco 6509 switches
- One Cisco 7513 router gateway
- 30+ servers for caching and content distribution and services
- Cisco local directors
- DNS cache servers
- 12 to 14 T-1 to OC-3 line connections

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NetworkWorld REVIEW
Network Documentation

The skinny on your network

While Configuresoft's ECM and Ecora's IT Auditor for Windows can tell you more about the computers on your network than you ever thought to ask, ECM is the more useful of the two.

BY BARRY NANCE,
NETWORK WORLD GLOBAL TEST ALLIANCE

Can you ever have too much information about the computers on your network? We think so. Documenting a network and its nodes is a useful undertaking only if it leads to solving a problem or saving time you otherwise would've spent doing the job manually. Within this narrow but results-oriented focus, a number of software products claim to provide the right amount of detail about your network. Solving problems — or better yet, avoiding them — is the raison d'être for these automated data collection and presentation tools. We evaluated a pair of these tools to discover whether they supply too little, too much or just the right amount of information.

If you don't care how many computers are on your network, much less how they're configured, stop reading. The documentation software we reviewed are intended for network administrators who've spent far too much time resetting network and system configuration data on misbehaving server and client machines.

Configuresoft's Enterprise Configuration Manager (ECM) 3.5 and Ecora's IT Auditor for Windows 1.4.3.136 will document your network's computers, but they work in sharply different ways. ECM gathers an unbelievable and nearly overwhelming wealth of detail from the Windows NT and 2000 machines, either servers or clients, on which you install Configuresoft Distributed Component Object Model (DCOM) agents. In contrast, IT Auditor needs no agents, but it gathers information only from servers. ECM reports a ream of data on every computer, most of which you'll never need. While even the short version of IT Auditor's reports are verbose, they contain useful nuggets of server configuration data.

Our tests showed ECM is the better tool for monitoring and troubleshooting Windows machines, but we wouldn't use it for collections of more than about 5,000 clients. When used strictly to help manage Windows servers or on small Windows-based networks, however, ECM is an extremely useful tool. IT Auditor's server-only reports are less useful and its data collection process is slower than molasses in January.

A flood of detail

ECM supplies more detail about each agent-equipped Win 2000 and NT computer than you'd ever think to ask for. Unfortunately, it doesn't offer configuration management for Windows 95/98/Millennium Edition. ECM's details include free disk space, event log entries, device drivers, file and printer shares, installed software, running processes, services, user IDs, passwords, registry keys and values.

We found ECM's detail overwhelming. When we used the ECM data to troubleshoot client configuration problems, drilling down through the mass of configuration data was easy only for a small to moderate number of clients. For large client populations (more than 5,000 computers), using the ECM data to solve a problem with a specific client node would be tedious and time-consuming. On the other hand, on an ongoing basis, monitoring client configuration changes with ECM to stay ahead of problems (such as running out of local disk space) is easy. Similarly, monitoring Windows-based servers with ECM adds an incremental assurance that those servers will remain healthy and available. Judiciously using ECM to manage only server configurations is a smart and creative application of ECM's abilities.

ECM stores its collected configuration data in a SQL Server 7.0 database (that you must buy separately), and its 30 built-in reports use SQL queries to retrieve the data. ECM also worked well with SQL Server 2000. Obtaining an ECM report is a matter of choosing a report in ECM's report module, modifying the associated SQL query to contain any selection criteria you want to apply and then running the query. Once you've prepared baseline reports, you can tell ECM to thereafter show just changes to the baseline. Its Microsoft SQL Server requirement means you'll perform a moderate amount of database administration. Be aware that you won't need to design database schemas, but you will have to set up the back-up/restore operational procedures and keep an eye on the database server.

Ecora's IT Auditor for Windows will collect data on your Win 2000 and NT servers. It gathers data on running applications, Dynamic Host Configuration Protocol and Domain Name System settings, event log entries, file and print shares, hardware settings, installed operating system particulars, user IDs and groups, server policies, services, file replication specifications, TCP/IP settings and domain controller details. IT Auditor for Windows doesn't monitor clients, which leaves the vast majority of your computers' configurations unwatched. However, if you're only interested in servers or dead set against installing agents on client machines, IT Auditor is your kind of tool.

IT Auditor gets confused in the presence of workgroup (peer) Win 2000 and NT servers. It lets you select the workgroup as if it were a domain, but then fails to gather any configuration information from the workgroup's computers. Using the IT Auditor reports to troubleshoot server problems is more difficult than using ECM's because the information is embedded throughout a series of Web pages or Microsoft Word documents. You can navigate through the pages and documents by title and subject, but drilling down to a specific server's configuration (in a large pool of such servers) is labor-intensive.

IT Auditor for Windows emits a set of reports each time it collects server configuration settings. The reports are the data repository; it doesn't store configuration data in a relational database. IT Auditor produces short-version and long-version reports in Web page, comma-separated-value (CSV) and Word document formats. Disappointingly, the Word documents in our

NetResults

Enterprise Configuration Manager 3.5

SCORE: 3.5 **COMPANY:** Configuresoft, (719) 447-4600, www.configuresoft.com **PRICE:** $775 per server plus $30 per client **PROS:** Well-indexed collection of configuration detail. **CONS:** Only works with Windows NT/2000; using ECM with tens of thousands of PCs can be difficult.

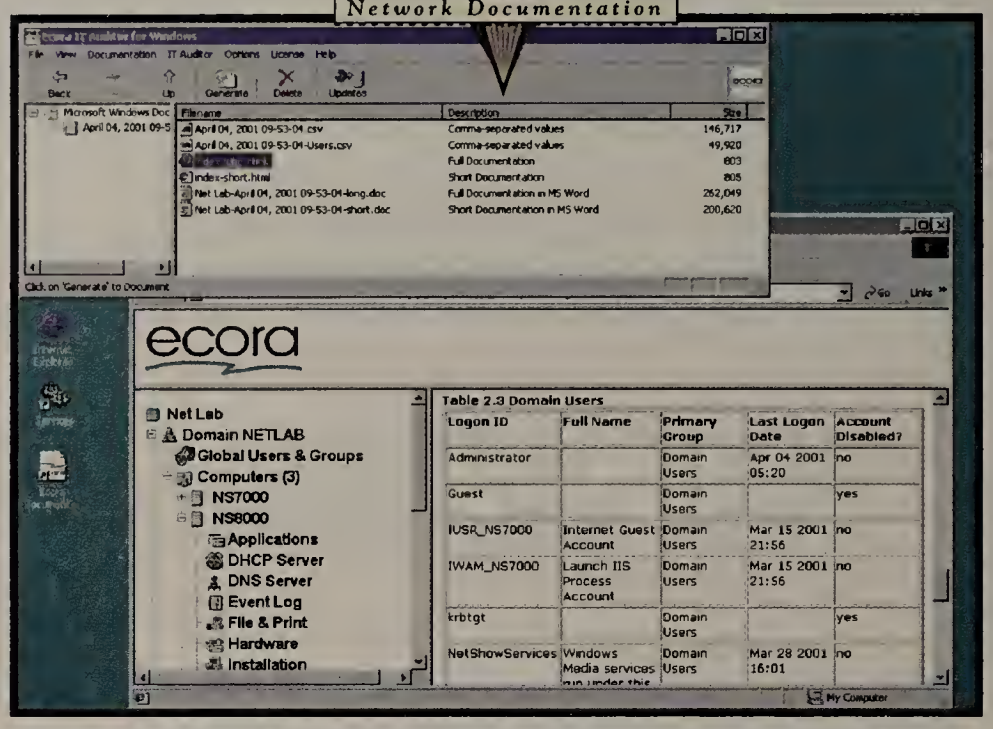
IT Auditor for Windows 1.4.3.136

SCORE: 2.9 **COMPANY:** Ecora, (877) 923-2627, www.ecora.com **PRICE:** $1,000 per server **PROS:** Simple, easy-to-use interface; doesn't need agents. **CONS:** Glacially slow; configuration data embedded in wordy reports.

	Accuracy 20%	Reports 20%	Performance 20%	Ease of use 20%	Documentation 10%	Installation 10%	Total score
Enterprise Configuration Manager	4	4	3	3	3	4	3.5
IT Auditor for Windows	4	3	1	4	2	3	2.9

Individual category scores are based on a scale of 1 to 5. **Percentages** are the weight given each category in determining the total score. **Scoring key: 5:** Exceptional showing in this category. Defines the standard of excellence; **4:** Very good showing. Although there may be room for improvement, this product was much better than average; **3:** Average showing in this category. Product was neither especially good nor exceptionally bad; **2:** Below average. Lacked some features or lower performance than other products, or than was expected; **1:** Considerably subpar, or lacking features being reviewed.

tests consisted of the same HTML as the Web page reports. The Web page, short-version report wasn't all that short, containing entries such as "If it needs to, Windows can move pieces of the operating system to the hard disk to free up memory" to describe Win 2000 and NT memory paging. When you're in the midst of solving a problem, such verbiage is less than helpful. The long version contains paragraph after paragraph of Windows server tutorial — material you'll find superfluous. Importing the CSV files into Excel takes just a single mouse click. IT Auditor can also produce Visio diagrams of the servers in your domains if you have Visio installed on the same machine as IT Auditor. Like ECM, IT Auditor can filter to display just those server parameter values that have changed since the last time IT Auditor was run.



IT Auditor for Windows, which only captures configuration data for Windows NT and 2000 servers, offers its results as Web pages, Microsoft Word documents or comma-separated-value files suitable for importing into Microsoft Excel.

Other versions

Because its agents are DCOM-based, ECM is Windows-centric and of little help in documenting Macintosh or Unix machines. While IT Auditor for Windows gathers data only from Win 2000 and NT servers, Ecora has released a version of IT Auditor for the Solaris operating system. We didn't test the Solaris-oriented product, but the platform neutrality the Solaris version represents is an encouraging sign that Ecora understands not all companies run Windows exclusively.

Ecora offers versions of IT Auditor for Oracle, Exchange, Cisco routers and Lotus Domino. We tested Ecora's Oracle documentation tool and found it excelled at revealing useful detail about the multiple instances of the Oracle 8i database product running in our lab.

Neither ECM nor IT Auditor for Windows was particularly quick about collecting configuration data, but IT Auditor was downright glacial as it queried our lab's Win 2000 and NT server computers. In our tests, IT Auditor took several minutes per server to gather configuration data. Documenting a server farm of 500 machines would consume nearly two days of IT Auditor run-time. Fortunately, ECM and IT Auditor for Windows have scheduling modules, which we used to relegate the data collection operation to off-peak hours (or days). In addition, ECM's scheduler can poll each ECM agent at agent-specific intervals. Interrupting (pausing) the data collection efforts of either product meant restarting from the beginning. Network utilization rose almost imperceptibly during each product's data collection effort, suggesting that the monitoring computer's processing speed might be the bottleneck for both network documentation products.

Configuring the configuration tools

To help drill down to just the information you're looking for, ECM's central console has an expandable/collapsible tree view user interface. For a selected entry in the left tree window, ECM on the right shows a list of configuration values. For example, the configuration values for user accounts include scope, account ID, last logon date and time, full name and other details. The separate reports module shows, for each report, a description of the report, the SQL query that produces the report and a view of the generated report data. Clicking on a menu item labeled "Run SQL Query" runs the report.

ECM also has a read-only Web interface for viewing network node configurations. From within the ECM central console, you can launch modules to specify agent polling schedules, ECM installation option changes and any of the great number of ECM parameters for controlling ECM's collection of configuration data. These parameters include filters for including or excluding domains, filters for which registry entries to inventory, rules for monitoring processes in agent-equipped network nodes and a checklist for spelling out which security-related data to gather.

IT Auditor's interface is by far the simpler and easier to use of the two. With it, you select domains (and, optionally, computers within domains) for which you need to see configuration data. After the interminably slow two-phase data collection operation, IT Auditor files the results in a folder and displays a list of the folder's contents. For each collection operation, the resulting six objects in the folder are a file of CSV user data, a file of CSV general configuration data and the short version and long version of the configuration data rendered as Web pages and Word documents (containing HTML, not textual report data).

ECM includes a printed user guide and "getting started" guide, but Ecora's documentation is only available online. Both products' documentation is clear and comprehensive, although the discussion on the ECM configuration (general) window is too brief to fully explain all the user options. Installing ECM and IT Auditor for Windows is simple and straightforward. Configuresoft's wizard for setting up SQL Server 7.0 flawlessly built ECM's tables and views, and it was nearly a seamless part of the ECM installation.

To the extent you have to troubleshoot what you suspect are server or client configuration problems, ECM and IT Auditor for Windows can provide clues that help. Neither product has a knowledge-based artificial intelligence interface to lead you through a diagnostic effort, but both products would benefit from such a feature. ECM provides far more detail than IT Auditor, and ECM is a better-indexed source of configuration data. We recommend you look closely at ECM as a server management tool, but sites with more than about 5,000 PCs won't find ECM an effective client configuration manager.

Nance, a software developer and consultant for 29 years, is the author of Introduction to Networking, 4th Edition *and* Client/Server LAN Programming. *You can contact him at barryn@erols.com.*

How we did it

We installed ECM and IT Auditor for Windows on our six-segment Fast Ethernet network. Each segment consisted of a NetWare 5.0, Windows NT 4.0 or Windows 2000 file server, an Oracle 8i, Microsoft SQL Server or Sybase Adaptive Server database server, a Netscape or Internet Information Server (IIS) Web server and 10 Windows 98, Win 2000 Professional, NT, Macintosh System 8, Red Hat Linux 6.2 and OS/2 Warp 4.0 clients. Each segment also had an SNMP-manageable switch, Lucent or Cisco router, Frame Relay DSU/CSU and an SNMP-manageable hardware probe.

The ECM and IT Auditor for Windows server components ran on a NT 4.0 Service Pack 5 Gateway NS-8000 computer with dual 333-MHz Pentium II processors, 512M bytes of RAM and three 9G-byte SCSI RAID drives. ECM stored its results in a Microsoft SQL Server 7.0 relational databases running on a Windows NT 4.0 Service Pack 5 Gateway NS-7000 computer with a single 333-MHz Pentium II, 512M bytes of RAM and six 9G bytes SCSI RAID drives.

In each test, we looked at ECM's and IT Auditor for Windows' ability to report on the configurations of our network nodes, troubleshoot problems and keep the network's computers running smoothly. We evaluated each product's user interface and measured how much time and network bandwidth each needed to collect network node configuration data. To determine accuracy, we visited each client and server to verify each machine's configuration settings via built-in Windows tools such as the Control Panel's Network object and the 32-bit Registry Editor.

NetworkWorld GLOBAL TEST ALLIANCE

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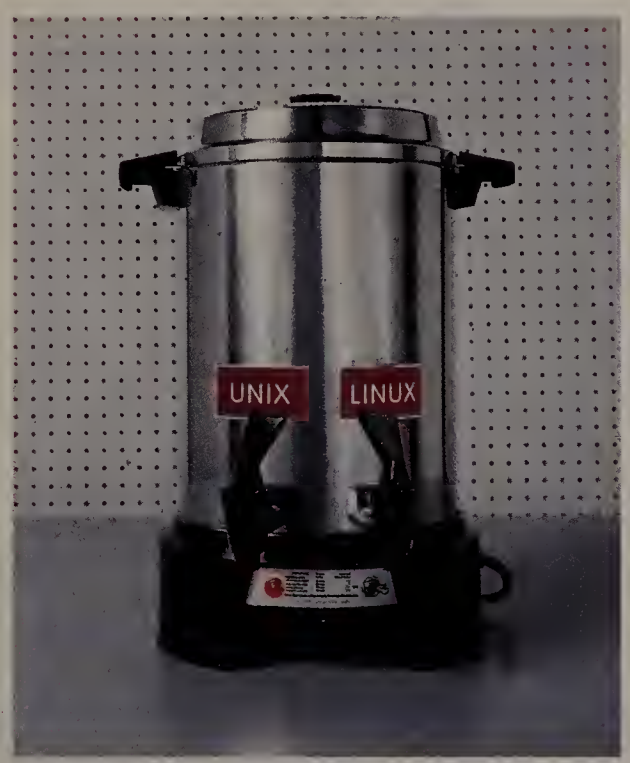

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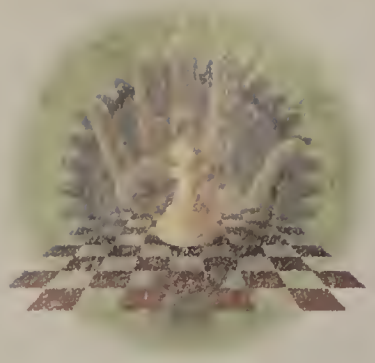

Management Strategies

Career Development, Project Management, Business Justification

Finding contract work

Should an IT consultant go it alone or rely on an agency to line up assignments? It depends on the reach of your personal network.

BY JOHN ROSSHEIM

Barry Katzman cut himself loose from a contracting agency so he could make more money. STEVEN VOTE

When network engineer Barry Katzman decided to become a consultant in 1994, cash envy had a lot to do with it. "All these guys used to brag, 'I make twice as much as you do,' " he says.

Katzman didn't get mad; he got even. He asked a friend to put him in touch with a contract recruiter. Before long, "I basically doubled my salary," says the Long Beach, N.Y., independent who specializes in networks for financial-trading floors.

If contract agencies brought him such lucrative work, why did he cut them out of his consulting practice about four years ago? Katzman says it was simple: He didn't need them to get the work, and without the middlemen he could make even more money.

Indeed, a dynamic strategy for choosing channels to obtain contract work — through an agency or via your own professional network — is critical to the business plan of anyone who wants to quit his job and start an independent consulting practice.

For consultants, the primary advantage of contract agencies is that they find work for you. "We start marketing people [for new projects] three months before their contract ends," says Christine Warren, CEO of ITProfiler, a placement firm in West Chester, Pa. So you've got to be honest with yourself and ask, "When was the last time I started planning a career move that far in advance?"

Some believe that agencies also offer a quality advantage. "A lot of the more interesting work will only come through an agency," says Jai Shekhawat, a former contract programmer who is now CEO of Fieldglass, a Chicago company that makes software for managing contingent workers.

Many employers prefer to have a recruiter prequalify candidate contractors. "When we have a candidate dropped in our lap [by an agency], 80% of the work is done," says John Runnels, CTO of WebSite.ws, a domain name registrar in Carlsbad, Calif. For this reason, and to avoid legal exposure, many Fortune 500 companies prefer to hire contractors through agencies, according to Brian Newkirk, vice president of recruiting for Comsys Information Technology Services in Houston.

So why not get all your consulting work through agencies? For one thing, in many arcane niches of network engineering, recruiters just won't appreciate what you have to offer. Many network consultants do work that is "far more specialized than any staffing agency could begin to understand," Shekhawat says.

Are you a "top gun" Unix specialist with a lot of experience in VPN and PKI? Many recruiters will just scan your acronyms into their databases and hope for the best. "I've never used an agency, and I don't know of any network integration agencies in the San Diego area," says Matthew Strebe, owner of consulting firm Netropolis and author of *From Serf to Surfer: Becoming a Network Consultant*.

But network consultants say the biggest reason to avoid agencies is the bottom line. "The main difference between contractors who find their own clients and those who use a third-party firm is that the rates of the latter group are lower," says Janet Ruhl, owner of the consulting-rates database RealRates.com, and author of *The Computer Consultant's Guide: Real-life Strategies for Building a Successful Consulting Career*.

Katzman's experience bears this out. He says he might bill a client $170 per hour for a job that would pay him $130 per hour through an agency. Even ITProfiler's Warren acknowledges a contract through a third party paying $70 per hour would probably earn $100 per hour for an independent contractor billing a client directly. If you can keep busy with billable hours — and that's a big if — you've got a whopping incentive to go it alone, even assuming you must buy your own benefits and pay the self-employment tax, as many agencies will force you to do anyway.

If agencies are not a desirable end, they may certainly be a stepping stone toward independence. "You should absolutely be plugged in with some agencies," Shekhawat says. "There is no downside, especially in the early days of your venture, when you need a hedge."

Agencies may come in handy when your own marketing efforts come up dry. "After a certain amount of time has passed, working is always better than sitting on the bench," says RealRates.com's Ruhl. "It is foolish to consider one way of working superior to another."

Katzman concurs. "To get to the point where the referrals just come in, you need to go to these third-party agencies," he says. Even when you work with agencies, "it really boils down to who you know, who you've worked for," Katzman says.

So whether you go it alone or depend heavily on recruiters, you've got to be good at networking.

Rossheim is a freelance writer in Providence, R.I. He can be reached at john@rossheim.com.

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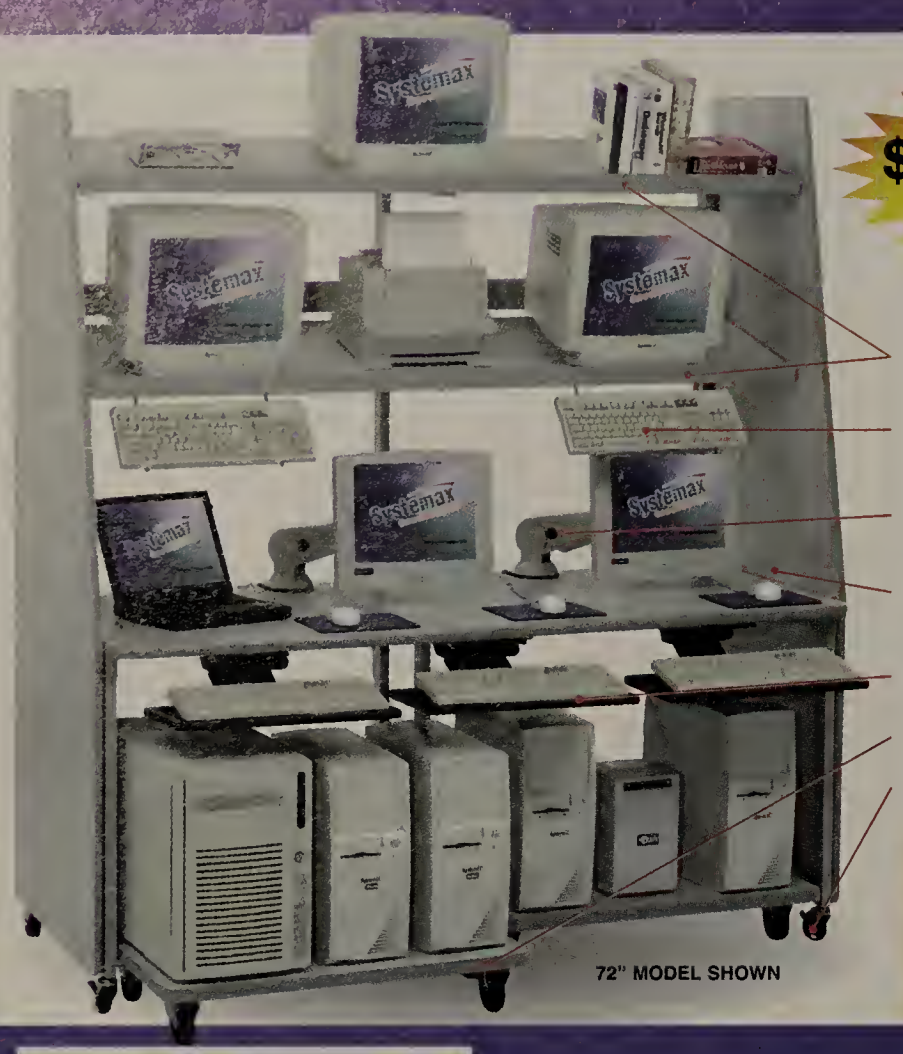

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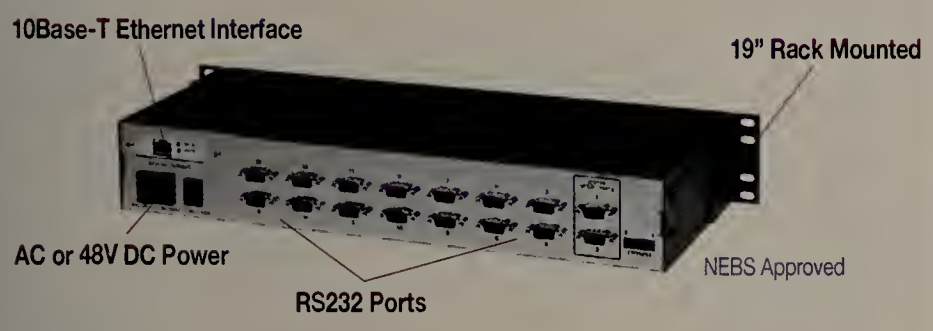

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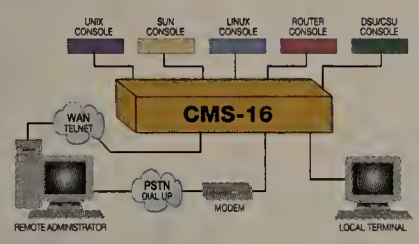
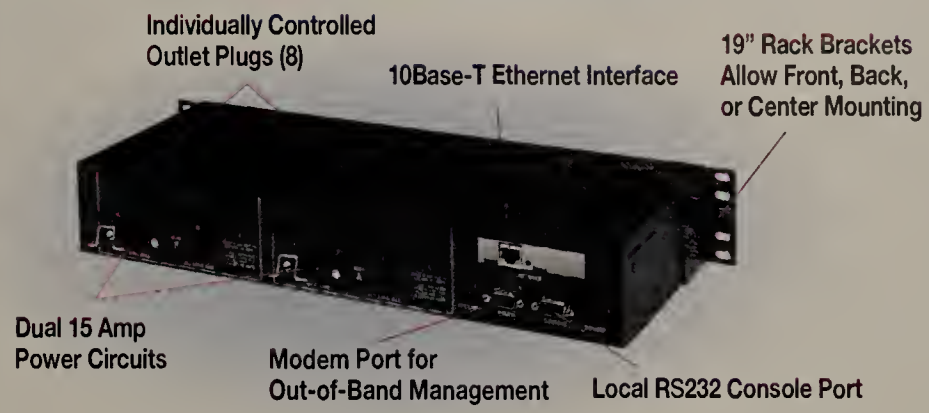
- IP Security Features
- Non-Connect Port Buffering



Telnet and Dial-Up Network Power Switch

Reboot Locked-up Equipment



Network Power Switch (NPS)

- 8 Individual Outlets
- On/Off/Reboot Switching
- Integral 10Base-T Interface
- Co-Location Features
- Outlet-Specific Password Security
- Network Security Features
- 115-VAC (230-VAC available)
- Power-Up Sequencing

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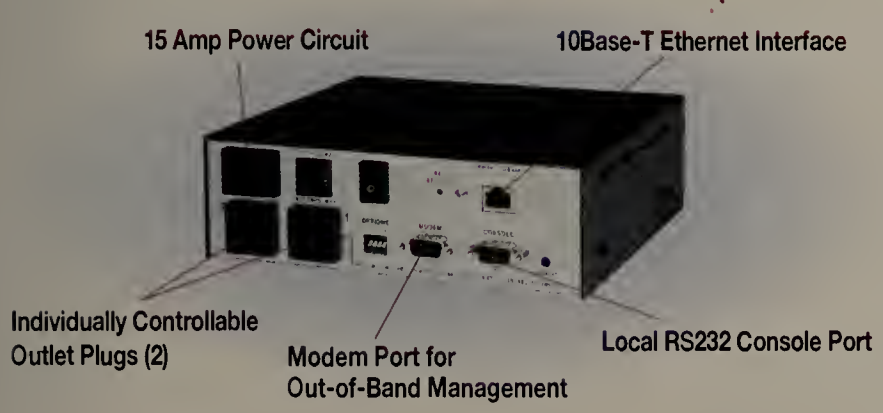
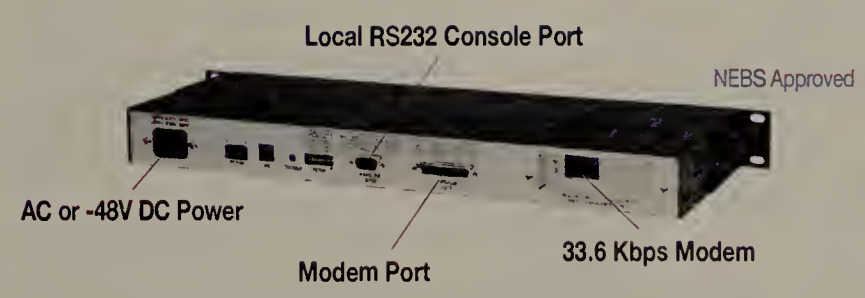


Telnet Power Switch (TPS)

- 2 Individual Outlets
- On/Off/Reboot Switching
- Outlet-Specific Password Security
- Network Security Features
- Manual On/Off Buttons
- Switches 15-Amp Load

Secure Modem for Remote Dial-Up Management

Dial-up Access to Equipment Bays



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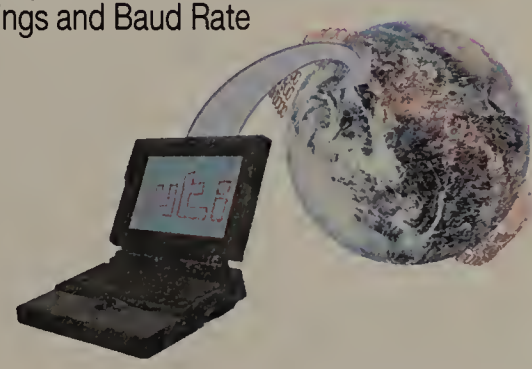

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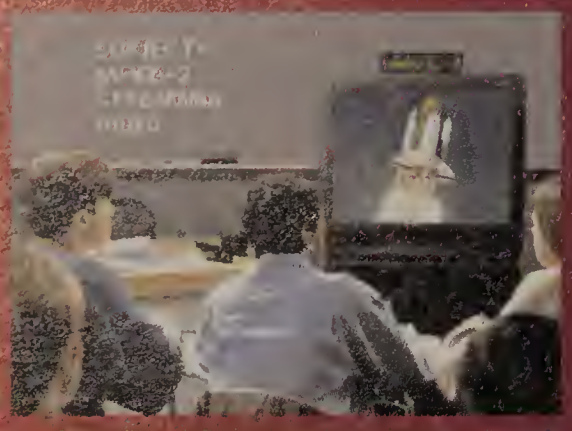

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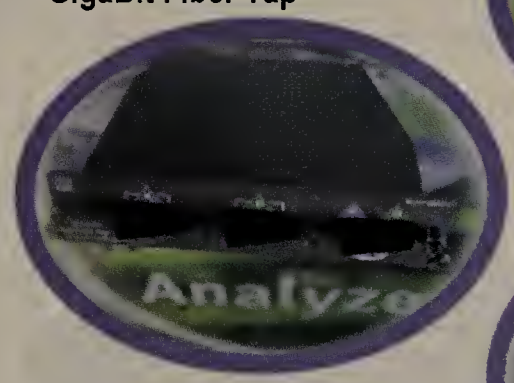

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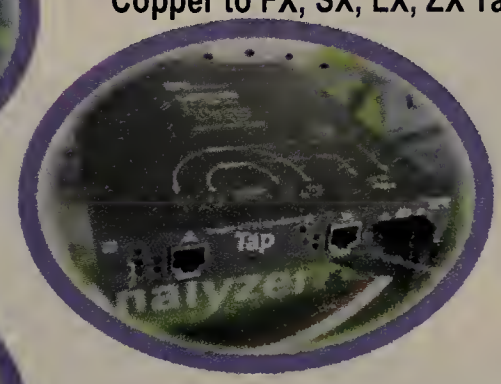

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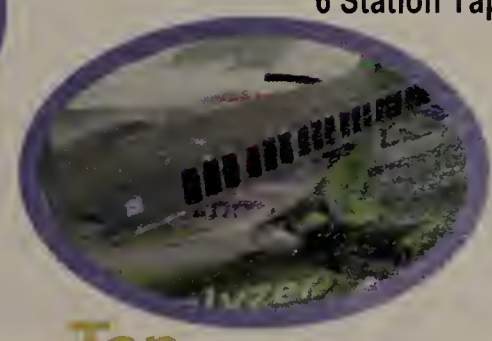

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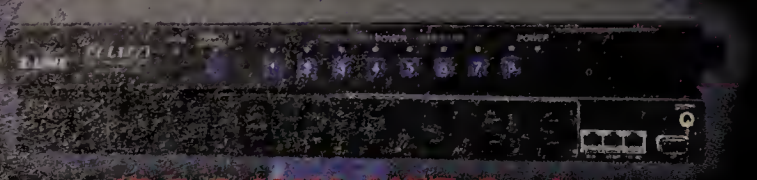

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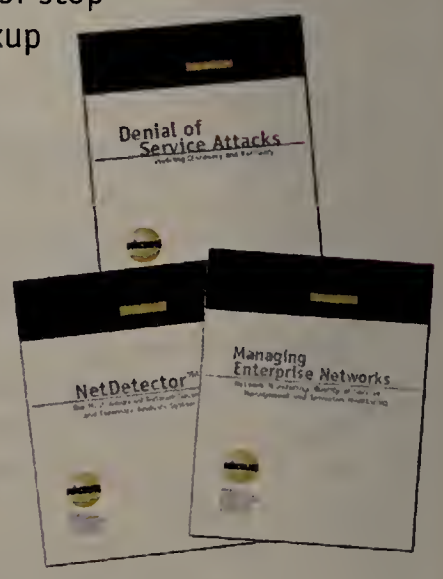

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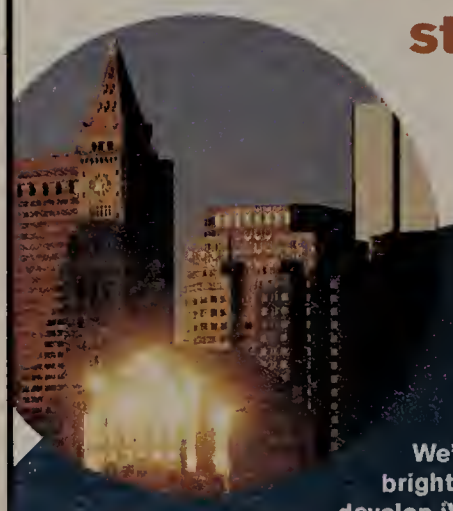

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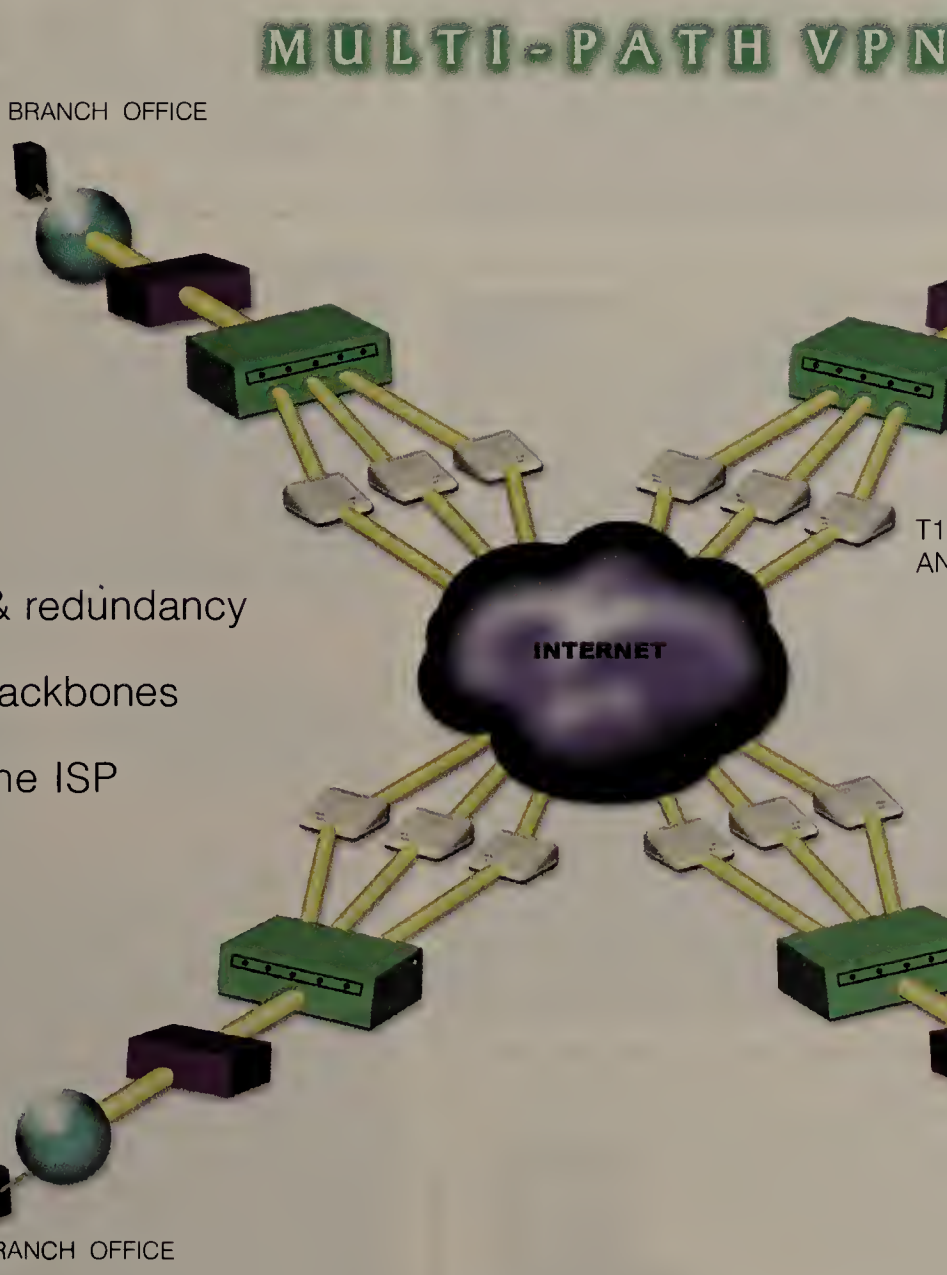

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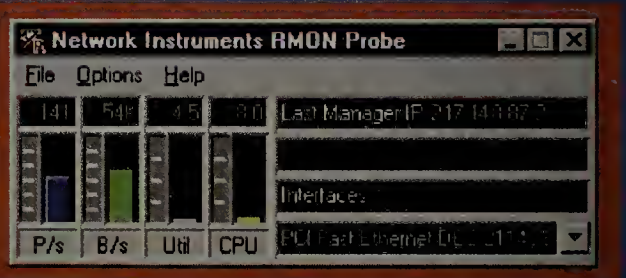

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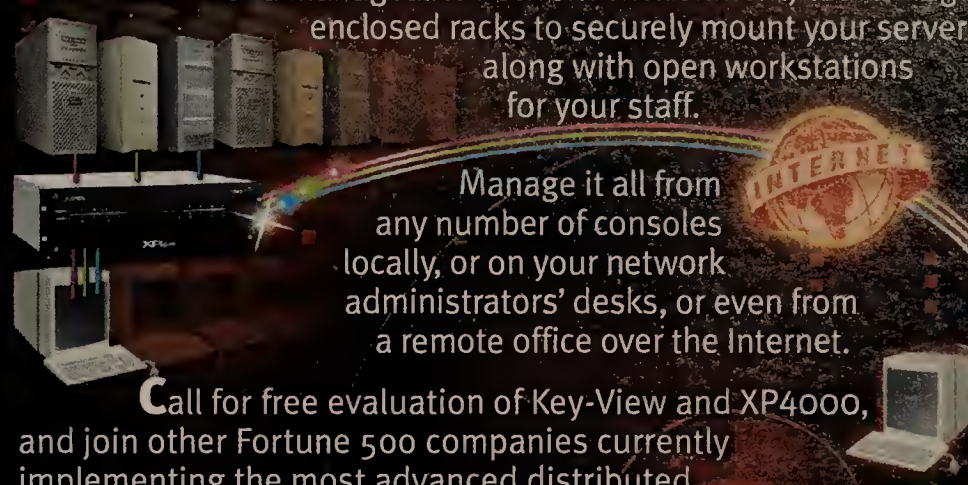

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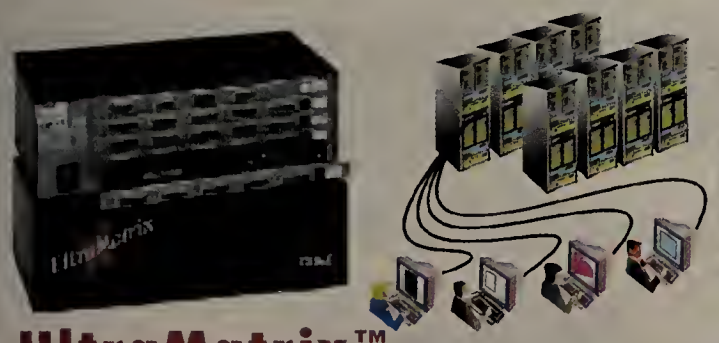

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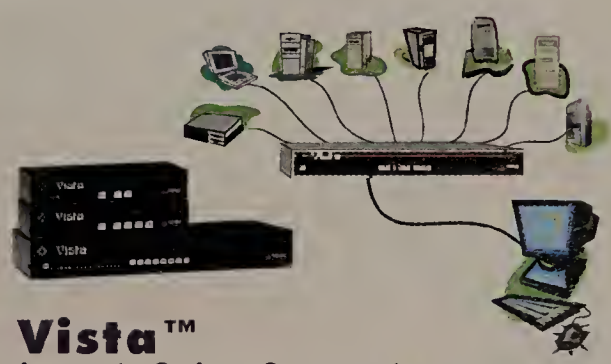

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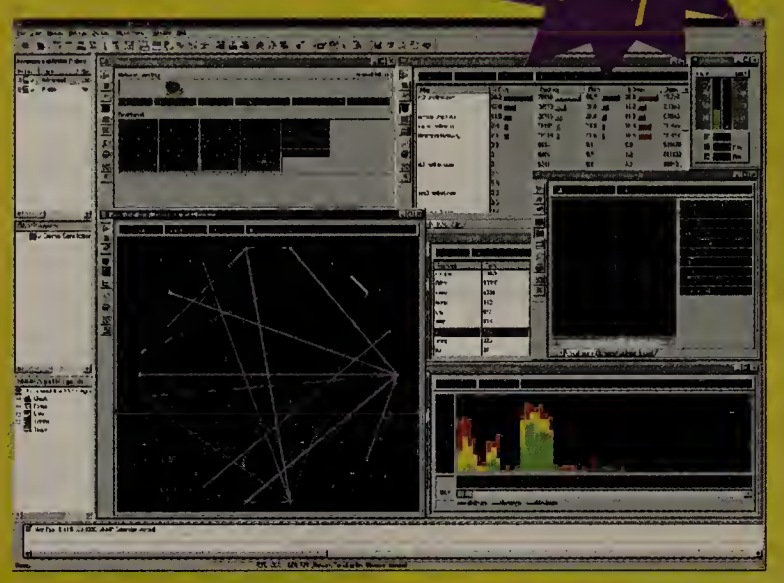

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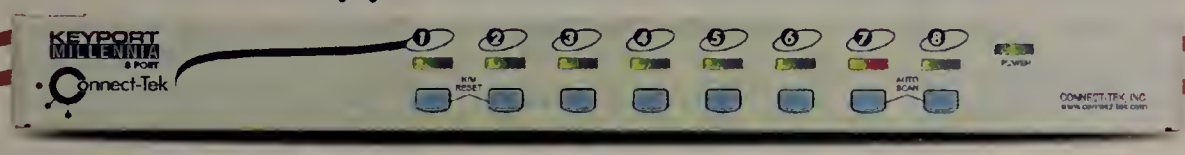

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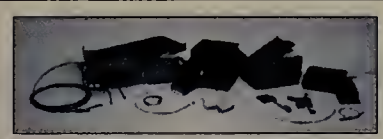

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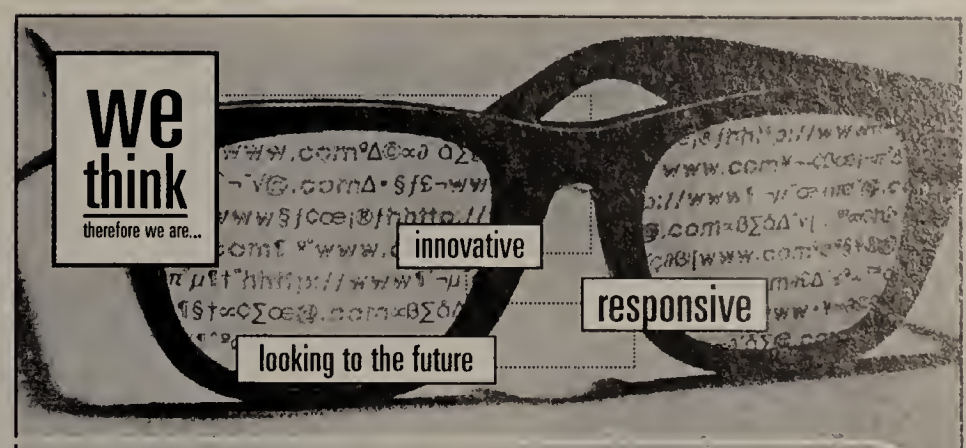

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If you are interested in being a part of an integrated IT team that leads the way, look no further than Gartner. Whether you're interested in joining our new internal department in Trumbull, Connecticut, or in another of our 80 offices around the globe, Gartner leads the way to a great career.

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Job Title: Chief Computer Programmer
Duties: Plans,directs and prepares programs to process data using C, C++, SQL databases, Visual Basic, COBOL, JCL, Developer 2000 forms, Shellscripts, UNIX, MVS, NT environments, RISC 6000, mainframe and PC platforms interfacing w/application planning and analysis, centralized and distributed data management technologies in client server applications, life cycle and structured systems development methods, automated development and visual programming tools. Consults management and systems analysts re program intent, programming and coding w/users re specifications and project requirements. Assigns and reviews design and coding of applications by programming personnel;schedules project resources. Develops programs from workflow diagrams and application systems. Analyzes test results for revisions and maintains business applications. Develops and maintains work-flow charts, application documentation and change requests. Trains and supervises subordinates in programming, coding, standards system development methodology, life cycle, back-up and recovery. Prepares records and reports;coordinates with manufacturers/vendors to enhance efficiency.
Requirements: Bachelor of Science or equivalent in computer science and 5 years' experience as Systems Analyst
Salary: $71,194/year
Hours: 40 hours per week 8 a.m. to 5 p.m.
Job Location: Greenville, SC
Send 2 Resumes to: Ms. Regina D. Ratterree E & T Technical Services SCESC-SC2001280
P.O. Box 1406
Columbia, SC 29202

NerveWire is a start up, fast-paced, rapidly evolving global management consulting and systems integration firm that helps clients reinvent their business models and envision, plan, design and build complex Value Webs. We currently have an opening for the position of **VP, Technology Alliances (Job Code AL0401) in Newton, MA:**

The VP of Technology Alliances is responsible for identifying potential alliance partners for NerveWire and for continuing to develop joint business development programs while meeting technological requirements.

Key responsibilities include: Develop and manage the technical partner alliance program within NerveWire to penetrate the market and build collaborative solutions. Identify, establish and manage key technology capabilities in collaborative solutions development, maintaining the right mix of technical partner alliances in line with NerveWire's core solution offerings. Manage and sell complex engagements for technical methodologies and solutions. Develop joint technical approaches to delivering complex middleware integration solutions and implementation methodologies with alliance partner technologies, using knowledge of EAI Technology. Manage a team to deliver these methodologies and solutions. Develop, train and manage a practice of technology implementation and integration experts in alliance partner technologies. Understand technical alliance partner's market position, financial health, and technology viability and synergy with NerveWire's business. Develop partnership agreements, performance expectations, program development and contract terms.

Requirements: Bachelor's degree or equivalent in Computer Science, Engineering, or a closely related field. Four years of technology consulting and business development experience in global consulting environment, including at least one year of experience managing teams delivering complex implementation methodologies and solutions in a fast-paced, rapidly evolving environment. At least one year of experience working with EAI (Enterprise Application Integration) Technology. Self-motivated, high energy individual. Ability/flexibility to travel up to 75% of the time domestically and internationally. Excellent interpersonal, communication, and presentation skills. Experience may be gained concurrently.

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Technical Team Lead: Job Code TT0401

To view a detailed job description, please visit our website at: www.nervewire.com.

Please include the Job Code when applying for any of the positions above. Applicants can send their resumes to: Recruiting, NerveWire, Inc., 275 Grove Street, Suite 2-200, Newton, MA 02466; or E-mail to: jobs@nervewire.com, or Fax to: (617) 831-3200. We are an equal opportunity employer

NerveWire

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Submit resume to:
APL Logistics, ATTN: Laurie Czechowski
1301 Riverplace Blvd, Ste 1200, Jacksonville, FL 32207
E-mail: Laurie_Czechowski@apl.com

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- **Software Engineers (Project Manager/Notes Client Editor)**
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- **Software Project Managers (Domino Web Engine Project Manager)**

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Computer Consulting firm based in Connecticut seeks to fill the following job openings in Hartford, CT and Boston, MA metropolitan areas:

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ii) Systems Analyst (multiple positions) – Must have M.S. in Computer Science, Computer Applications or equivalent, and 2 years experience.
iii) Software Engineer (multiple positions) – Must have BSc in Computer Engineering or equivalent, and 2 years experience developing Telecom applications using AIN, SS7, C++, VOIR, ISDN, SNMP.

Respond to: HR Dept., Talent Consulting Services, Inc., 21 New Britain Ave., Rocky Hill, CT 06067, or Job@Talentsys.com.

SYSTEM ANALYST: Design, development, testing, and deployment of graphic and textual reports for Internet projects. Participates in all phases of software development, deployment and maintenance. Design program for the web using PL/SQL, SQL, Plus, HTML, and java script, Oracle Reports, Oracle Forms and Oracle Application Server. Develops Oracle Reports writes complex and ad-hoc reports. Optimizes existing reports. Presents data through a browser in PDF, HTML or text formats. Follows and complies with business specifications in Portuguese. Supervises programmers engaged in Unix development, OLAP technologies particularly Oracle Discoverer. Job is in Miami, FL, 40 hrs. weekly, 9-5 pm, $54,000.00/yr. Bachelor's degree in Civil Engineering or related field and 2 years experience in job offered. Fax resume to Settle Consulting Corporation, Attention Alfredo Neves (954)928-0450.

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PROJECT MANAGERS: Experience managing large-scale systems development projects for clients, from requirements through on-going support. Ability to develop Requirements and Functional Design Documents, facilitate technical designs, specifications, and test plans. Develop/track project schedules/budgets. Participate in proposal development and estimates. Email: mary.duppler@lmco.com; Job Code PM0401.

SOFTWARE DEVELOPMENT ENGINEERS: Experience in object-oriented programming, Forte, RdB database environment, "C", "C++", VMS and UNIX, Informix ODS 7.3+, Informix SE or 2000, Cold Fusion, Power Builder, Crystal Reports & SQL. Experience in specification analysis, code development, testing, systems integration, troubleshooting and documentation. Email: mary.duppler@lmco.com; Job Code SD0401.

SYSTEMS ENGINEERS: Experience in design of relational complex systems comprised of networking equipment, computer systems, sensor technology, lasers, relay controls, process controls, and/or industrial electronics. Spec/source various electronic and computer components. Develop engineering drawings in AutoCAD. Conduct statistical data analysis with desktop PC tools. College degree in appropriate technical discipline. Email: mary.duppler@lmco.com; Job Code SE0401.

SITE TECHNICIANS: (Hilton Head, SC & Baltimore, MD): Experience in Windows, UNIX, networking equipment, sensor technology, lasers, relay controls, process controls and/or industrial electronics. 2-Year EE technical degree or equivalent training. Email: mary.duppler@lmco.com; Job Code ST0401. EOE

SOFTWARE ENGINEER to provide on-site consultancy in design, development, implementation, customization and maintenance of e-commerce applications, ERP packages such as MESA and supporting bar coding software packages; browser based real time production systems and web enabling of legacy applications on AS/400; provide systems software support on Windows NT, SQL Server, AS/400, ASP, Coldfusion, RPG, C, COBOL, Java and Websphere. Require: M.S. in Electronics Engineering/ Computer Science and two years experience in the job offered. Salary: $75,000 per year, 8 am to 5 pm, M-F. Apply with resume to: Vice President, Frontline Consulting Services, Inc., 8701 Mallard Creek Road, Charlotte, NC 28262.

Senior System Administrator (TWC Latin America) (Atlanta, GA) - Responsible for site, training and installation, testing support plan and all other operational and maintenance responsibilities for Latin Weather System network based on Unix system, NT server, TCP/IP network and related hardware, software, network and data configurations. Evaluate and direct the interconnection of the Latin American Networks with company-wide systems or networks. Responsible for ensuring and coordinating emergency support 24 hours per day, seven days per week. Develop and maintain operational support, backup and recovery procedures and their execution. Key person responsible for meteorological system additions or modifications and training of personnel in system administration. Principal contact with Latin Weather System vendors regarding users, system and network support. Must have Bachelor's degree or foreign degree equivalent in Computer Science, Electrical Engineering or related field, & five years experience in the job offered (Senior System Administrator) or five years experience as a Unix System Administrator. Must also have four years experience in TCP/IP; four years experience in network administration; and two years experience in Windows NT system administration. (Experience may have been obtained concurrently). Must have proof of legal authority to work in US. Submit resume to: Manager Staffing & Employment, The Weather Channel Latin America, Ref: SrSA, 300 Interstate North Parkway, Atlanta, GA 30339.

Senior Systems Analyst. $85,000/Yr. Overall job duties are: Design, develop, test, document and implement customized software applications using Oracle, PL/SQL, Webserver, PL/SQL Cartridges, Netscape Suite Spot, PRO*C, C/C++, Javascript, Java, Developer 2000, Crystal reports, Cold Fusion, Oracle and Webserver DBA, Oracle HR, and Payroll Applications. Interact with clients/customers, analyze & understand client requirements, and design customer specific applications. Communicate client requirements and lead a project team of over 10 programmer analysts & software developers. Administer Oracle database and webservers and design database warehousing system for large volume of data. Must be experienced in UNIX and its administration, Oracle Financials, MS Office and X-Windows. Requires BS in Science or Engineering and 2 years of experience in job duties. Send resume to Enterprise Computing Services, Inc., 8744 Main Street, Suite 101, Woodstock, GA 30188 with proof of legal authority to work permanently in the US.

Database Administrator. 8a-5p. 40 hrs/wk. Analyze data/databases; make required changes in database/structure; code, test, implmt, support, monitor, do tuning, backup & recovery using Oracle DBA, Oracle 8i, Oracle Financials, Developer 2000, Appworx, web based applics, UNIX & Win NT. Masters or equiv deg in Comp Sci or Engg, Electrical, Electronics or related field of Engg. In lieu of Masters candidate can have Bach in specified majors & 5 yrs exp as D/base Admin/S/ware Engr. Send resume w/ref #002 to: Russ Wise, Dir of HR. Air2Web, Inc., Promenade II, 1230 Peachtree St., 12th Fl., Atlanta, GA 30309

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Position #63449
Deadline Date: June 12, 2001

This position is responsible for directing, coordinating, planning and supervising the operations of Information Services. The Agency is searching for someone who has the skills to establish system priorities; determine allocation of Agency automation resources; and coordinate the research, analysis and development of systems and methods.

Excellent communication and management skills are a must.

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Agency for Health Care Administration
Attention: Emma Hill
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Tallahassee, Florida 32308
OR
Internet: http://www.myflorida.com

If you need an accommodation because of a disability in order to participate in the application/ selection process, please notify the hiring authority in advance. EEO/AA/ADA/VP

Systems Analyst II sought by NJ based pharmaceutical company for East Hanover, NJ office. Must have Masters degree or equivalent in comp. science and 2 yrs exp. in web development/comp. programming/database design. Respond w/Job Code 9883 to Novartis Pharmaceuticals, HR Dept., 59 Route 10, East Hanover, NJ 07936.

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Lernout & Hauspie Holdings d/b/a Dragon Systems has an opening in our Newton, MA office for a Research Engineer with experience working with large vocabulary continuous speech recognition systems. Interested candidates should send resume to Maureen Cuoco, Human Resources Representative, Lernout & Hauspie Speech Products, 52 Third Avenue, Burlington, MA 01803.

Ordusion Technologies, Inc, Atlanta, has immediate multiple openings for experienced Programmer/Analysts, Software Engineers and DBAs in the following: VB, VC++, JAVA, HTML, ASP, Informix, Oracle, Sybase, CRM/financials/other commercial software packages, web/wireless/internet technologies, Systems/DB administration etc. BS/MS degree (or foreign equiv) required. Highly competitive salaries, travel/relocation required. Send resumes to 6055 Atlantic Blvd, Suite K2 Norcross, GA 30071.

Senior Programmer/Analysts - Harrisburg, PA. Multiple positions available for individuals with minimum Master's + 2 yrs exp or Bachelor's + 5 yrs exp in UNISYS 1100/2200 mainframe COBOL programming including DMS1100, RDMS2200, TIP/DPS and ECL. Work with users & programs through the entire systems development life cycle. Qualified applicants submit resume to: (201)836-4466. Reference job code: SPBA0301. Equal Opportunity Employer.

Lead Database Architect, Malden, MA. Will participate in development of 150+Gigabyte databases in parallel architecture environmt; oversee & contribute to all technical design aspects of database; perform data analysis, logical & physical design of databases, data validation & physical implementation, provide overall direction to programming staff. Requ: B.Sc. + 5 yrs Oracle exp OR M.Sc. in computer engineering; knowledge of Unix, C, C++, Oracle & other relational databases such as Sybase, Informix. Please send resume to IDRYMA LLC, 252 Kennedy Drive #302, Malden, MA 02148.

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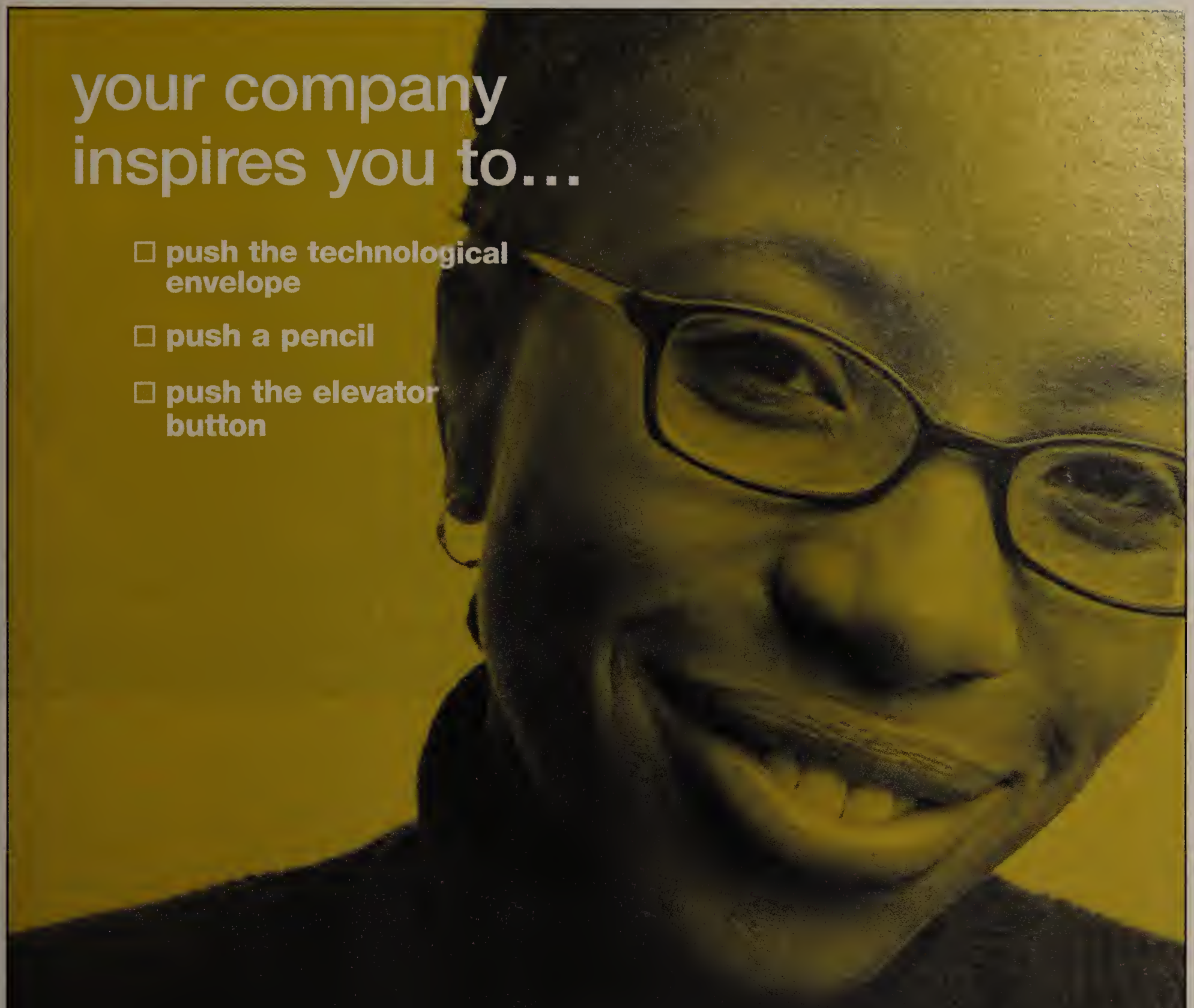

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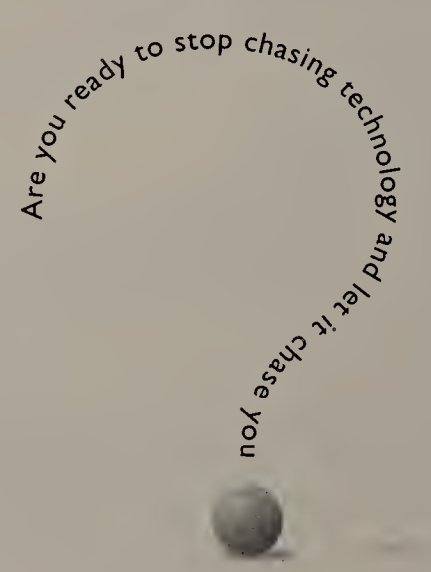

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IT Careers Hot Skills: JAVA

If there is one segment of the information technology world holding stable in the slowed economy, it is JAVA. Seen as the universal language of the Internet, Java also serves as a building block for integration. Yes, there are languages that run faster, but most businesses see advantages to non-proprietary building blocks supported by heavy lifting hardware for speed.

Alan Snyder, president and CEO of **Idea Integration**, says his firm continues to have strong demand for the mission critical project solutions. "Our folks provide functional analysis, programming, architecture and development for delivery of a solution so it represents a strong opportunity for those who know custom application development, business intelligence and have industry expertise. A core fundamental is JAVA, an open language that allows our clients to use multiple vendors. It's a language information technology can coalesce around."

Idea Integration, based in Jacksonville, FL, is a division of **Modis Professional Services**, as is **Modis, Inc.**, based in Jacksonville, FL. **Modis'** President and CEO Jack Cullen, says his firm is providing staff augmentation and consulting primarily to Fortune 500 companies. "I've been in the IT industry since 1985, and I've found that the most secure job is that of a consultant and right now a consultant who has JAVA skills. Our clients continue to need JAVA skill sets, so we anticipate growth within this sector of 10 to 15 percent for the year."

Snyder notes that individuals who have the strength of JAVA skills with some level of architecture knowledge and industry experience are hard to beat. "It's a great combination of standards-based, open system architecture that makes a person very valuable," he explains. "JAVA is well-suited for large-scale architecture and as a tool for integration. Businesses are continuing to spend money on data management and anything that can assist in generating revenue or savings."

Cullen says clients continue a heavy migration toward the Internet. "In addition, we're seeing continued high demand for conversion experience and that requires JAVA HTML, JAVA Beans and JAVA/C++. We also are careful about getting to know you personally so that we know whether you are more suited for dealing with clients and their customers or cranking code and working the project."

Modis offers continuous training and provides opportunities to migrate to entirely new projects. "We offer employees a wide base of experience and wide geography. We're concerned with your future, not just brokering your skills," says Cullen.

At sister organization **Idea Integration**, Snyder says the firm is interested in building long-term relationships with people. "We want to offer the best complete package to employees – compensation but also work/life balance and training. We've come to realize there is no single silver bullet to making employees happy. It requires a holistic approach that is based on strong technical challenges and the kinds of projects that allow individuals to grow and stretch."

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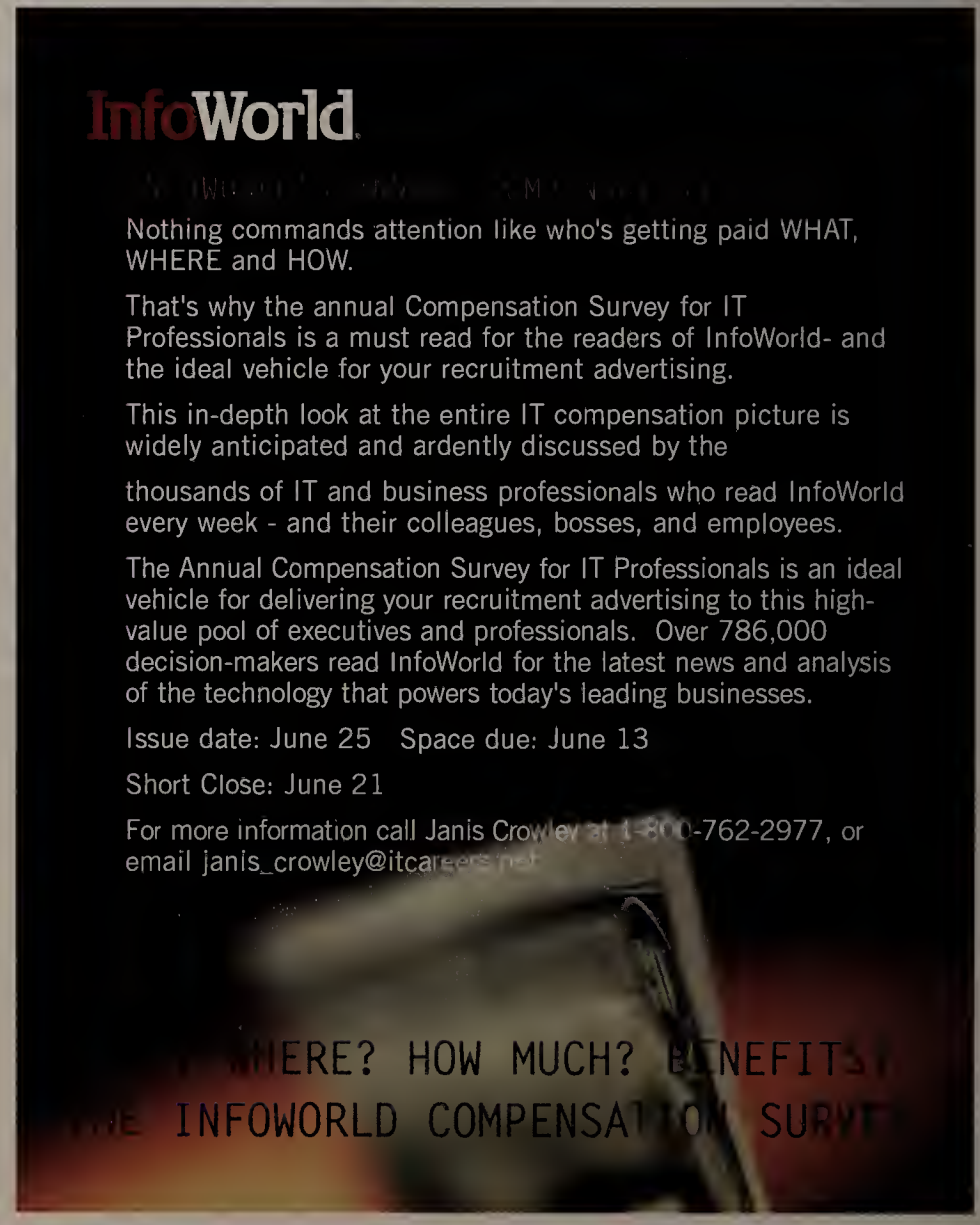

Check out our WITI FastTrack Supplement today

If organizations want to flourish in the global economy, leaders need to nourish their employees. Our Women in Technology International (WITI) FastTrack coverage will cover the trends and techniques of leading companies around the United States. If you're interested in a top IT environment offering first-class treatment, check out WITI FastTrack. The list below offers just a sample of the exceptional employers featured in this supplement.

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For more information on WITI FastTrack, please call Janis Crowley at 1-800-762-2977 ext. 7607, or email at janis_crowley@itcareers.net.

WITI Regional Chapters	East Coast Technology Summit
Various Locations	Boston, MA
Various Dates	October 24-25, 2001
Issue Date: August 20, 2001	Issue Date: September 24, 2001
Space Reservation: July 27, 2001	Space Reservation: Aug. 31, 2001
Short Close*: August 1, 2001	Short Close*: Sept. 5, 2001

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EDITORIAL INDEX

@court 10
A
Access 360 47
Agea 106
Agere Systems 8
Aligo 106
AnswerLogic 50
Ask Jeeves 50
Astral Point 41
AT&T 62
Aura Networks 41
Avici Systems 14
B
BAMnet 108
Broadbase Software 50
Business Layers 47
Bus-Tech 25
C
Cable & Wireless 33
Candle 41
Cisco 1,8,12
Conxion 33
Cosine 1
Counterclaim.com 10
Counterpane 33
Covigo 106
E
EDS 8
e-filing.com 10
Ellipsus 106
EMC 8
eTour 50
Exodus Communications 33
F
Firepad 26
Fujitsu 8
Funk 28
H
Hitachi 8
Hyperchip 14
I
i2 Technologies 41
IBM 8,16,25,41
Integral Access 41
Intel 26
InteQ 18
K
Kana Communications 50
Kite Networks 38
L
LeftHand Networks 25
Lineo 41
M
Microsoft 25,30,108
N
NEC 8
Netegrity 47
Nextel 106
Novell 48
NTT DoCoMo 33
Nuclio 18
O
Open Market 106
P
Panicware 108
PeopleSoft 12
PictureTel 28
Pilot Network Services 62
Pluris 14
Polycom 28
Primus 50
Proxim 8
PSINet 8
Q
Quantum Bridge 41
Qwest Communications 38,62
R
Riverstone Networks 41
S
Securant 47
Siemens 41
SilverBack Technologies 18
SpeechWorks 64
Sprint 38
Sun 8
System Management Arts 16
T
Tally Systems 28
Teligent 38
ThinAirApps 106
Totality 18,33
U
Unisphere Networks 1
V
Verilaw 10
W
Winstar Communications 38

ADVERTISER INDEX

Advertiser	Page #	URL
ACI International	88	www.aciconnect.com
ADC Telecommunication	17	www.adc.com
Adtran	110	www.adtran.com
American Power Conversion	86	http://promo.apc.com
Anritsu	2-3	www.us.anritsu.com
Aprisma	53	www.aprisma.com
Avaya	24	www.avaya.com
Blaze Network Product	22	www.BlazeNP.com
Canon USA Inc	36-37	www.imagerunner.com
Compaq Computer Corp	15	www.compaq.com
Computer Associates	46	www.ca.com
*Configure	54	www.configureinc.com
Connect-Tek	89	www.connect-tek.com
Digital Network	66	www.digitalnetworks.com
FatPipe Network	85	www.fatpipeinc.com
Foundry Networks	20-21	www.foundrynetworks.com
Gadzoox Networks Inc	45	www.gadzoox.com
Global Computer Supplies	74	www.globalcomputer.com
Global Manufacturing	84	www.gocables.com
Global Technology Associates Inc	80	www.gnatbox.com
Harris Corp	30	www.statonline.com
Hergo Ergonomic Supplies	84	www.hergo.com
Hewlett Packard	27	www.hp.com
IBM	51, 71, 109	www.ibm.com
Intel Corp	13, 58-60	www.intel.com
IXIA	9	www.ixiacom.com
Leamkey Inc	84	www.leamkey.com
Micromuse Inc	79	www.micromuse.com
Microsoft Corp	34-35	www.microsoft.com
Mier Communications	56	www.mier.com
Net Optics Inc	81	www.netoptics.com
Net to net Technologies	83	www.nettonettech.com
Network Instruments	86, 88	www.networkinstruments.com
Network Technologies	76	www.nti1.com
Niksun Inc	82	www.niksun.com
On Technology Corp	19	www.on.com
Opticom	82	www.getview.com
Platform Computing	40	www.siteassure.com
Pulizzi Engineering	82	www.pulizzi.com
Quarry Technologies	73	www.quarrytech.com
Rackit Technology Corp	87	www.RackitTechnology.com
RAD Data Communications	57	www.rad.com
Raritan Computer	87	www.raritan.com
Riverstone Networks	42-43	www.riverstonenet.com
Rose Electronics	87	www.rosel.com
RSA Security Inc	6	www.rsasecurity.com
SBS Technologies Inc	86	www.sbs.com
Server Technology Inc	88	www.servertech.com
Sharkrack	74	www.sharkrack.com
Siemens ICN	29	www.freevoipfromsiemens.com
Solunet Inc	78	www.solunet.com
Spectrum Control	80	www.spectrumcontrol.com
Sprint	23	www.sprintsolutions.com
Sprint	39	www.sprintbiz.com
Sun Microsystems Inc	4	www.sun.com
Sunrise Telecom Inc	77	www.sunrisetelecom.com
Systems Manufacturing Corp	76	www.smcplus.com
Telcordia Technologies	11	www.telcordia.com
VBrick Systems	78	www.vbrick.com
Visual Networks Inc	32	www.visualnetworks.com
Websense	49	www.websense.com
Western Multiplex	31	www.wmux.com
Western Telematic	75	www.wti.com
World Data Products	76	www.wdpi.com

White Paper

KPMG Network Provider	2	www.kpmgconsulting.com
Aurora	5	www.auranet.com
Quick Eagle	7	www.quickeagle.com
Cygnet Technologies	11	www.CygnetTechnologies.com
Riverstone Networks	12	www.riverstonenet.com

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3 Com	Network Technologies, Inc
BitPipe	Opticom, Inc
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.biz,
continued from page 1

of the name space."

Companies are particularly critical of .biz, which is designed to be the first global domain just for business. They are complaining about the process .biz uses to protect trademark owners and the costs associated with .biz services.

".Biz is treating large companies and [intellectual property] holders in general as a gold mine, and they're the shovel," says Antony Van Couvering, president of corporate-oriented registrar NameEngine. "There's a lot of concern about what the .biz IP claim service costs and what it gets you."

Van Couvering says most companies are filing claims for .biz names to protect their major trademarks and brand names but not for variations of those names.

"They're filing their name, the commonly used abbreviation, and maybe one or two of their big products," Van Couvering says. "They're not filing claims wholesale."

The trick for corporations is balancing their desire to limit the number of new domain names they have to buy and manage, while making sure that they don't leave themselves open to the threat of name speculators who will charge exorbitant fees in the future.

Corporate concerns about .biz and .info are being aired at an Internet Corporation for Assigned Names and Numbers (ICANN) meeting in Stockholm, Sweden that ends today.

ICANN selected seven new top-level domains last November. The first two coming to market are .biz, which is restricted to commercial use, and .info, which is open to any business or individual. Due out soon are .pro for medical, accounting and legal professionals, and .name for individuals. The other new domains — .museum, .coop and .aero — are restricted to museums, cooperatives and aerospace companies, respectively.

In mid-May, ICANN finalized agreements with the registry operators for .biz and .info. NeuLevel, a joint venture between U.S. telephony administrator NeuStar and Australian domain name registrar MelbourneIT, runs the .biz registry. Afilias, a consortium of 19 domain name registrars, operates .info.

Registrars are taking advance orders for .biz and .info names even though the names won't be operational until October. NeuLevel says that about 1 million advance orders have been placed for .biz names, but it's unclear how many of the requested names are duplicates. Because .biz uses a lottery system to award names, some companies are submitting 100 requests for a single name.

Registrars report similar demand for .info names, with strong interest in generic terms that have proven popular in .com. The .info registry uses a random round-robin selection process among the registrars, who are charging companies thousands of dollars for an early-round pick. Alternatively, companies can register one name with multiple registrars for a lesser fee.

"Companies that tend to be active in .com and .net are the ones filing .biz and .info advance requests," says Marcello Hunter, director of retail sales for Network Solutions' Web identity group. "Industries such as real estate, financial services, retail, high-tech, consumer products and entertainment" are on the forefront.

Companies also are starting to file IP claims for .biz names under a process that started two weeks ago. For $90 per name, companies can file a claim for a .biz name that matches one of their trademarks. That fee ensures the company will be notified if someone else secures that name during the random selection process scheduled for August. The two companies have a month to resolve their dispute over the name before it becomes operational. If there's no resolution, the company that won the lottery gets the name but uses it at the risk of encountering future legal problems.

In general, the business community is disappointed with the .biz IP claims process and prefers the so-called sunrise registration period that .info offers to trademark holders. With .biz names, companies face an upfront, dispute-resolution proceeding to protect a trademark. With the .info sunrise period, trademark owners have a month to register names that match their trademarks before general registration begins.

"There's a significant amount of dissatisfaction with the .biz IP claims feature," says Bret Fausett, a domain name expert and a partner with Hancock, Rothert and Bundshoft. "Ninety dollars is a lot of money when . . . all you're getting is notice if someone wants to register a name that you've trademarked. You're not getting the name."

It's unclear how the .biz and .info registries will handle competing trademark claims from companies that share the same name, such as Delta Airlines and Delta Faucet. In these cases, the best strategy for corporations is to be the first one to claim the name.

Register.com reports that it processed several hundred .biz IP claim forms in the first week of availability. Most companies filed claims for 10 or 20 .biz names, but a few filed claims for 100 or more names.

"All of these companies have had experiences where they've had to pay a lot more for a domain name later," says Van Couvering. "From a long-term perspective, it makes sense to file a lot of claims now. But everyone has a budget, and they're going to do the most important names first."

Another controversial feature of the .biz registry is the extra fee — which could be as high as $500 — that NeuLevel will charge to lock in a name to ensure that it isn't accidentally transferred to another company in the future. The business community says .biz name buyers should automatically get protection against being "slammed" in this manner.

"People are a little peeved at the .biz registry lock," Van Couvering says. "It sounds great, but it's ludicrously over-priced."

In response to the complaints about .biz, NeuLevel executives say they are building a high-tech registry with advanced functionality and security. NeuLevel has created an LDAP-based database that can process updates in 15 minutes, compared with several hours with .com. They're also offering certificate-based authentication of .biz names to prevent hijacking and support for emerging technologies such as IPv6, the next-generation Internet Protocol.

".Biz is going to be the right place to find out more information about a name to facilitate e-commerce, support advanced search engines and to facilitate the convergence with telephone and wireless networks," says Doug Armentrout, CEO of NeuLevel.

Intellectual property experts advise companies to file IP claims on their key trademarks and to register those names in both .biz and .info. They expect companies will buy .biz names defensively and redirect them to existing .com sites. But they say .info sites could be used for additional corporate or product information.

"Most companies need another domain name like they need a hole in the head," Fausett says. "A lot of people think ICANN shouldn't be expanding the name space, but they are grumpily going along with it."

AT&T's strategy is typical, as the multinational telecommunications giant reviews its trademarks and the cost implications of protecting them in the new domains.

"We have a very large and complex portfolio of trademarks, and we're trying to develop a strategy for each of the [new domains] that will fit the characteristics of the domain and our ability to most effectively protect our brand," Caid says.

She says doing a bulk registration of AT&T's .com names in the other domains isn't necessary.

"It's a little frustrating that there's so much variance between the new names in the steps that trademark holders have to take," Caid says. "That adds cost, which eventually begins to affect the services we offer. It also adds complexity, which causes errors. We hope that out of the evaluation process of .biz and .info and others, a more standardized approach will begin to emerge." ◪

The details behind .biz and .info

New domains choose different registration processes, timetables.

Domain	.biz	.info
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Phase 2	Domain name application and selection starts June 25 and ends Sept. 25. Companies can submit requests to be awarded by a random lottery. Companies that file an IP claim form will be notified if their name is sold. The two parties have a month to resolve the dispute before the name is awarded. The IP claims-matching service costs $2 per name.	Start-up registration starts Aug. 1 and ends Aug. 31. Anyone can apply for a .info name. Names awarded in a random, round-robin style. Companies can apply for a name with multiple registrars to improve their chances or pay extra to get an early pick.
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B2B,
continued from page 1

economic picture, companies are rethinking these ventures. For some, they need to get their house in order internally, never mind joining an exchange."

According to market research firm IDC, about 1,000 business-to-business marketplaces were launched during the past 18 months, with only about 100 of them doing actual transactions. Dozens of marketplaces have failed; so many that some industry watchers have stopped keeping track. However, there are about 700 marketplaces active worldwide. By 2004, one in three U.S. companies will conduct business-to-business transactions online, says Boston Consulting Group.

Marketplaces are broken into three models: consortia, which are owned by industry-leading vendors; public, which are run by a third party; and private marketplaces run by one company and its selected suppliers. Private marketplaces have had

BRUCE HERSHEY

"The trend for the future is private and consortium marketplaces."

John Noller, purchasing director, Sunstone Hotels

the earliest success and will likely win out, according to a consensus of analysts.

"The trend for the future is private and consortium marketplaces," says John Noller, purchasing director at Sunstone Hotels. Private marketplaces allow buyers to control costs without hidden fees and markup products, he says.

"Most, if not all of the major public and industry exchanges — Avendra, Hilton [and others] — look to charge in the middle, capture a portion of rebates, and/or charge the supplier and buyer on the back end, increasing product costs while placing another set of hands in the equation," Noller adds.

Business-to-business marketplaces are supposed to offer buyers and sellers a common area to supply and buy products and at some point extend their relationship by, for example, collaborating on product design. Buyers are able to find the best prices. Sellers off-load excess inventory. All participants meet new prospective partners.

And it has worked that way in some cases.

Praxair, a Danbury, Conn., natural gas provider, says it has saved 15% to 20% in costs and made bids in hours rather than weeks by buying products through its private marketplace.

In others cases, the inhibitors — like distrust of competitors — have proven daunting.

Part of the distrust stems from how marketplaces garner revenue. Some, such as World-Wide Retail Exchange and Converge, charge transaction fees ranging from 0.25% to 5% of each deal, according to analysis firm Electronic Market Center. Buyers pay in some instances, sellers in others, and sometimes both. Some marketplaces also charge advertising and subscription fees.

Even if companies are willing to shell out the cash to participate, other questions remain.

NEC Electronics is exploring joining a major network supplier's marketplace as one of 40 vendors invited to participate, says Michael Turay, senior manager of eBusiness development. He declined to name the supplier. The marketplace is the supplier's private network of contract manufacturing sites and component makers. NEC Electronics' parent company, NEC Corp., was also one of the founders of Converge, an electronic component marketplace, and NEC Electronics is planning on participating in Converge's auction services, though cautiously until he sees some return on investment.

"I am continuing to evaluate their other services [such as supply chain management and design collaboration] as they become available as to whether those services have a place in our strategy," Turay says. These services aren't clearly defined, but Converge does offer auction and auction-related services such as logistics and escrow.

Even having these services can be double-edged, however.

"Auctions beat down the price, so what's the motivation when the result isn't desirable?" Turay asks. "I still plan to use auctions; I will start by only posting obsolete or end-of-life products so as not to disrupt the distribution channel."

Not everyone shares those reservations.

"It's shortsighted if suppliers think [marketplaces] are driving prices down," says Jeff Johnson, director of business-to-business commerce at Best Buy, which is a buyer at the World-Wide Retail Exchange. "It's more access to potential buyers. If they win the rights to supply products, their production runs increase. There won't be any downtime and ultimately their costs will go down as well."

Cultural and ideological concerns can be more problematic, says Andy Dupont, global director of the electronic market channel at Dow Chemical.

"They get excited when they see the potential, but they're scared," Dupont says. "They fear they'll lose the advantage and there will be price transparency causing margins to go down."

Price transparency — the ability of competitors to see each other's prices — stems in part from the e-procurement software the marketplaces implement, according to a Jupiter Media Metrix report. E-procurement packages from the likes of Ariba and Commerce One also limit the ability of suppliers to promote their products. For example, an Ariba marketplace platform only allows suppliers a 250-character description of a product and lacks information-sharing capability.

Between the distrust among buyers and sellers, brand erosion for sellers and the high start-up costs, marketplaces are proving to be difficult undertakings.

According to a Forrester Research report, Fortune 1000 businesses will each spend $5.4 million to $22.9 million in the next five years buying business-to-business applications, changing their internal procurement processes, paying transaction fees and integrating internal systems with marketplaces.

"It's a complicated process," says Dow's Dupont. Dow runs its own marketplace, My-Account@Dow, and co-founded and participates in ChemConnect, Elemica, Omnexus and TradeRanger. "It costs tens of millions of dollars to connect to exchanges; you're not going to do it for hundreds of thousands of dollars," he says.

Once they swallow the price tag, there's no guarantee businesses will accomplish their goals.

Maine Bucket, a Lewiston maker of pine and cedar products, had been listed on lawn and garden marketplace eGarden.com for about nine months, joining when it saw high-profile companies such as TrueValue and DoitBest sign on.

"EGarden is working really hard promoting the site, so it may take more time," Maine Bucket executive Laura Steckino recently told *Network World*.

But time ran out for eGarden, as the marketplace announced it would close shop shortly after that interview.

However, for every marketplace that fails, it seems as though another one pops up.

PartnerAxis expects to launch this month as a Linux marketplace for resellers and manufacturers. It will charge a minimum of $1,000, with higher fees based on the choice of services such as assisting companies in recruitment and access to a potential customer list. PartnerAxis has spent millions to build the marketplace. Jupiter Media Metrix notes that companies building marketplaces can spend up to $30 million.

PartnerAxis executives say its marketplace would help ease the burden of companies trying to build their own Linux channel. According to the company, it takes nine to 18 months and costs $750,000 to $1.5 million to build a channel with maybe 250 to 500 value-added resellers participating. It then costs an additional $1 million to $1.5 million every six months to maintain the channel.

DAVID POWERS

Michael Turay, manager of eBusiness development, NEC Electronics, says auctions drive down pricing.

NeTraverse, an Austin, Texas, Linux software maker, joined PartnerAxis as a way to blitz a large number of value-added resellers in minutes and promote Linux uniformly to large corporations.

"The honeymoon period [for Linux] is over" now that vendors such as Red Hat are struggling, says Alan Boyd, vice president of sales for NeTraverse. "We need to make Linux commercial and move it to the front office of business users."

Overall, the jury remains out, experts say.

"We're in an evaluation period right now, and marketplaces are just getting to the CEO level," says Steve Butler, an analyst at eMarketer. "They're just starting to learn about the technology and they'll start tapping the brakes [if they're unsure about marketplaces and their value] because any decisions they make will impact the company for five to 10 years."

Next week: What the future holds for business-to-business marketplaces.

See related story. Page 47.

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Open Market expands content management

BY JENNIFER MEARS

BURLINGTON, MASS. — Open Market this week will unveil the latest version of its content management software, providing broader international language support for global users and integration with more operating systems.

The release makes it easy for companies running AIX (IBM's version of Unix) and Microsoft Windows to install Open Market's Content Server Enterprise Edition (CSEE), a suite of content management software built on Java 2 Enterprise Edition (J2EE) application servers from IBM, iPlanet and BEA Systems.

Other updates in Content Server 3.6 and Content Centre 3.6, components of CSEE, include expanded language support for most European languages, Japanese, Chinese and the Universal Transformation Format 8 character set.The software also makes it easy to imbed search capabilities from Alta Vista and Verity.

Analysts say the improvements signal a trend for Open Market as it moves away from its e-commerce roots and into the content-management arena.

"[Its products] ride entirely on top of the J2EE application server so they have been able to fairly rapidly evolve the function of their solutions without having to worry about the infrastructure piece," says Rob Perry, a senior analyst at The Yankee Group.

Open Market's content management software includes collaboration tools, workflow controls and personalization features that let corporations direct how content is managed and presented.

The company's customers include media companies such as *The New York Times,* the *Washington Post* and Business-Week Online; financial services firms such as GE Capital and The Hartford; and manufacturing companies such as Milacron and 3Com.

Mark Cutsforth, CTO of Space.com, a Web site devoted to all things outer space, says Open Market lets Space.com publish on the Web with little trouble because of its workflow rules and other collaboration features.

Cutsforth says Open Market won his company's business hands down after a review of several competitors, primarily because of its commitment to open standards such as J2EE.

"The fact that they support open standards made it easier to do customizations as we implemented it," he says.

Content Centre 3.6, which must be installed with Content Server 3.6, is a browser-based application that lets nontechnical users create, manage and direct content. The application includes a model site for the publishing industry, and Version 3.6 adds a model site for financial services. Content Centre 3.6 expands support for Java Server Pages so developers can use JSP tags to access all services in Open Market's system, says Joe Alwan, Open Systems' senior vice president of worldwide marketing.

While competitors such as Interwoven,Vignette and Documentum are moving toward tighter integration with J2EE, Open Market has focused on that from the start.

"That's one thing that sets them apart," says Nick Wikoff, an analyst with Forrester Research."From the beginning, they've really tightly supported J2EE and integration with the application server."

Wikoff says Open Market offers "solid technology," but he would like the software maker do more with collaboration tools, especially in the areas of workflow controls and delegated administration.

Evaluation versions of Content Server 3.6 and Content Centre 3.6 are available today at JavaOne and on Open Market's Web site, Alwan says. Pricing starts at $29,000 per CPU.

Open Market: www.open market.com

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Java,
continued from page 8

databases, a process called persistence. According to Java users, the new persistence model is stronger, EJBs become more portable, and third-party object-relational mapping tools can be used more easily.

Finally, to improve interoperability among different EJB servers, the release specifies the Common Object Request Broker Architecture Internet Interoperability Protocol as the standard transport protocol to be used by components activating each other over a network.

Later this year, Java2 Enterprise Edition 1.3 will be formally released, incorporating the Java Connector Architecture (JCA), which defines a standard way for Java components on a Java applications server to connect with enterprise applications, whether packaged software — such as that from PeopleSoft or SAP — or custom-built programs. JCA will be implemented as new code by the vendors of application servers, middleware and enterprise applications.

Today, connecting with such legacy applications requires lots of time and coding, says Brian Reed, a vice president at Merant, a Rockville, Md., vendor of connectivity software.

As vendors such as Merant roll out JCA-compliant software, customers will be able to write one set of code and call any JCA connector, for example, those for CICS or SAP's R/3. JCA will provide customers with easier interoperability and eliminate much of the need to customize software, he says.

Sun this week also will draw attention to the April announcement of Project Juxtapose (JXTA), which relies on several concepts from Unix programming to create peer-to-peer Java applications, which can interact with each other over a network without needing a central server.

The goal is to create software that can work with any programming language or underlying network platform, such as TCP/IP or Bluetooth.

JXTA makes use of Web standards such as XML, for moving data over a network, and Java, for running peer applications on any operating system.◪

HANDHELDS TO HAVE THAT JAVA FLAVOR

Sun is touting Java as the cross-platform programming model that can make sense of a blizzard of new handheld devices and the operating systems that run them.

Here's what will be on display at JavaOne:

- Nextel, the first U.S. carrier to introduce Java cell phones, the Motorola i85s and i50sx, will show them running with many Java applications. Motorola will unveil a wireless provisioning application for Java phones. Service providers can download and install new Java applications wirelessly to subscribers.
- Ellipsus, a Swedish wireless software vendor, is unveiling a Java application, called InfiniteMass, which oversees distribution and installation of applications to different brands and types of client devices, and builds a bridge to back-end legacy applications.
- Agea will demonstrate its Java2 Micro Edition mobile enterprise applications running on Motorola handsets. The demonstration will include remote access to an enterprise groupware server, two-way notification and messaging alerts, and access to corporate files, text files, spreadsheets and Word documents.
- Aligo will show off Version 2.0 of its M-1 Mobile Application Server, a Java server for wireless applications. This version includes a new visual development tool set; a program that tracks and identifies wireless devices, letting the server adapt information to a specific user or a class of users; and support for browsers that incorporate voiceXML.
- Covigo is packaging a pair of mobile application development tools (Covigo Studio for team-based programming and Covigo Engine for executing the applications) into one package. Added in are a new graphical management console and a reporting and analysis application for monitoring usage patterns of mobile applications.
- ThinAirApps is introducing Identicon DB, a tool to build database applications that can run, initially, on Palm OS handhelds. Developers can work with existing C/C++ or Java tools, or with the AppForge tool set for building Palm OS applications in Microsoft Visual Basic. The Identicon DB server, written in Java, handles for the client devices all network and database protocol conversions, and administration tasks such as security, session management and connection pooling.

— John Cox

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Backspin

Upgrading IT's summer

"After Oct. 1, [Microsoft] Office customers without upgrade rights will spend up to $300 more per user to purchase new licenses for Office XP."

— from John Fontana's *Network World* article, "Microsoft says upgrade now or pay big later" (www.nwfusion.com, DocFinder: 4447)

There goes your quiet summer. From what I'm hearing, a lot of people are getting fired up about what looks like highway robbery. And that's only part of what is annoying IT managers.

There they were, just getting their Office 2000 implementations bedded down, their users trained, their support staff comfortable, and looking forward to a long, calm summer after which they could, as autumn leaves began to fall, start thinking about the whys, whens and wherefores of upgrading to Office XP. And now The Redmond Baron (www.nwfusion.com, DocFinder: 4544) is ruining their plans.

MARK GIBBS

No more sitting in deck chairs on the corporate rooftop soaking up the sun and pretending to be in off-site meetings where cell phone calls don't reach ("You what, czzzzzzk, what? Sorry, czzzzk, we seem to be breaking up . . ."). Oh no. With Microsoft's edict, it's back to the salt mines and out with the spreadsheet to figure out what upgrading will cost and whether there are support engineers available to do it and how long it will take. And then where will the money come from? This will require meetings with the CFO, meetings with the appropriate committees, lots of form filling, departmental reviews, strategy discussions with the CEO and then scheduling, executing the rollout, retraining users ("Why are we upgrading so soon?" "Because. Now shut up and press F1."), fixing the inevitable plethora of problems and then, when it is all done, bracing for the next Microsoft marketing onslaught.

This is the stuff that drives IT folks crazy and makes them mad at Microsoft. Be that as it may, Microsoft is driven by revenue and, most definitely, not by any desire to keep IT managers in the sunshine.

In 1999, Microsoft was in second place in software revenue, with sales of $21 billion compared with IBM's $44 billion. But Microsoft's revenue growth was 25% while IBM's was 10% and therein lies Microsoft's problem: It has to keep growing in those rarified regions of revenue, where you have to be ruthless to make the numbers.

Now, such behavior is not wrong. It is simply business. Sure, it smacks of ruthlessness, but isn't that simply an emotional gut response rather than an admission that if you tie your leg to a train, you are going to go wherever the train goes whether you like it or not. If you don't want to follow the train around, untie yourself . . . and that's an interesting thought.

Microsoft can only manipulate its markets for applications and operating systems in this way for a while. Then, when viable alternative products appear, "thud!" Microsoft's revenue will take a beating because IT managers will untie themselves posthaste.

Consider the Windows NT/2000 market. Have we talked about Linux before? Sure we have. And I just read that IBM — a long-term supporter of Linux — along with NEC, Hitachi and Fujitsu are starting a joint project spurred by Asian customer demand to create enterprise-level Linux systems. And you know they will do it.

Microsoft can and should do what it pleases. And ultimately, so will IT managers. Perhaps Microsoft will see the income slack taken up by the company's new Xbox gaming machine.

I suspect when Microsoft talks about "upgrade rights" it doesn't believe that the upgrade could be to something other than Microsoft products. Microsoft doesn't know how much having a quiet summer means to IT professionals.

Thoughts on relaxation to nwcolumn@gibbs.com.

'NET BUZZ

The latest on the Internet industry

PAUL MCNAMARA

So I zip over to the Web site for Marks & Spencer, a British department store, simply to ascertain whether the retailer uses an ampersand or the word "and" between "Marks" and "Spencer." (Hey, that's what editors do; it's an honest living, more or less.)

Anyway, I spot the ampersand right away on the home page and immediately toggle back into Microsoft Word to resume my appointed task of editing the story that had mentioned the store. Total time on the site? Oh, maybe 5 seconds.

Which was apparently long enough to run up a tab of sorts.

About 15 to 20 seconds later, what pops up on my screen — remember I'm in Word now editing that story — but an advertisement for Marks & Spencer. . . . The bloody thing had stalked me across applications like a hound hell-bent on finding the fox.

Needless to say, Buzz was not amused. But to whom do I express my ire over being chased down in this manner?

Marks & Spencer? Perhaps, but doing so doesn't hold much hope for satisfaction, because I can scarcely boycott a merchant whose store stands an ocean away.

Microsoft? Why not? We're talking about the meshing of Internet Explorer, Word and Windows here. Someone in Redmond either decided that allowing this kind of commercial intrusion into a business application is acceptable or didn't have enough on the ball to know it would happen.

None of which should be construed as a general condemnation of pop-ups, even though these screen-grabbers are becoming more common than and potentially as annoying as lawn grubs. Entertainment, news and e-commerce sites need fresh sources of revenue to replace their withering banner ads. If pop-ups will keep the likes of Salon.com from going belly-up, I've got no problem with closing a window or two.

Just keep these things the heck away from my other apps.

Of course, my tolerance for advertising is probably above average in part because advertising pays my mortgage. Others may have little patience for pop-ups, so to them we offer these download sites:

At www.panicware.com/products.html, you'll find Pop-Up Stopper 2.2, a free utility from **Panicware** for Internet Explorer that purports to do what the name implies. You can also visit www.yippee.net/html/win/internet/title7516.htm for a tool called Bannercatcher, which apparently does not do as its name implies, but instead vanquishes only pop-ups.

Don't ever say I've never given you anything.

Buzz readers have clout.

Latest example: On April 16 we wrote about a home back-up ISP service called **BAMnet**, which uses a dial-up number and personal identification number — (888) 822-6162, 2154408382 — to offer users Internet access for 6.5 cents per minute, no monthly fees. According to BAMnet founder **Michael Meighan**, that item prompted about 100 frequent travelers and recreational vehicle owners to contact his company and plead, "Hey, what about us?"

"As it turns out, people who sign up for DSL or cable services no longer have a dial-up account," Meighan says. "It's not like you can take your cable modem with you and plug it into a remote location."

"Many broadband users are finding that they are stuck with having to pay monthly for a second ISP," he says. "They love the idea of having a dial-up ISP where they only pay for what they use. So, in response to your readers, we extended our pay-as-you-go model to include travel users where their on-the-road access is billed back to their home or business phone."

You can check out the new offer at http://travel.bamnet.com.

"We will probably need to create a nifty name for this model, as this URL is not exactly something easily memorized," Meighan adds. "We're open to suggestions."

Meighan's address is mmeighan@bamnet.com. Mine is buzz@nww.com.

IBM @server xSeries 330

WITHOUT CACHE, YOU'LL PAY DEARLY.

IBM Internet Caching Appliance xSeries 330-based 1U Rack[1] Model

Improve your organization's browser performance

Powered by Volera™ Excelerator™ 2.0
Forward (browser) proxy support
Supports up to 300 hits per second[2]
Standard multimedia streaming support
Intel® Pentium® III processor 866MHz[3]
384MB[4] SDRAM (expandable to 4GB)
Dual 18.2GB[5] Ultra160 SCSI hard drives (expandable to 72.8GB)
Integrated dual 10/100 Ethernet
IBM Director system management software
90-day Startup Support
3-year parts and onsite labor limited warranty[6]
Part #865437X

$8,439[7]

SuccessLease™ for Small Business $280/MO.[8], 36 MOS.

CUSTOMIZE YOURS:

IBM Gigabit Ethernet Adapter
(Part #19K4401) $495 or $18/month

IBM NetBay22 22U Rack
(Part #9306200) $1,455 or $51/month

Internet Caching Appliance xSeries 330-based 1U Rack Model

High-performance Web hosting caching appliance

Powered by Volera Excelerator 2.0
Reverse (host) proxy support
Supports up to 5,000 requests per second[2]
Standard multimedia streaming support
Intel Pentium III processor 866MHz
1GB SDRAM (expandable to 4GB)
18.2GB Ultra160 SCSI hard drive (expandable to 72.8GB)
Integrated dual 10/100 Ethernet
IBM Director system management software
90-day Startup Support
3-year parts and onsite labor limited warranty
Part #865438X

$16,170

SuccessLease for Small Business $521/MO., 36 MOS.

CUSTOMIZE YOURS:

Additional 18.2GB 10K-4 Ultra160 SCSI HS Hard Drive
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APC Smart UPS 1400RMB Universal Power Supply
(Part #94G6674) $1,009 or $36/month

Get the IBM Internet Caching Appliance because ***time is money.***

There are three ways to boost Web-hosting performance: (1) spend a lot of money on servers; (2) spend a lot of money on bandwidth; (3) spend less money on the IBM Internet Caching Appliance (ICA), and dramatically accelerate the performance of the Web servers and communications lines you already have.

If you want to improve Internet delivery to your employees, the forward proxy ICA stores frequently requested Web pages – offloading up to 70% of user requests (dramatically accelerating overall Web speed). That means you won't have to buy servers or additional bandwidth so often.

Your ICA solution comes preloaded on a number of select IBM @server xSeries models specifically configured to meet your needs. For example, the amazingly compact xSeries 330-based models featured here are powerful and reliable, but at less than 2" thin and expandable to 72.8GB, they leave plenty of room for growth. This model also offers advanced serviceability and manageability features like Light Path Diagnostics™ to speed and simplify component replacement. Plus, they're easy to install. Simply choose the xSeries appliance that's right for your business, plug it in and you're up and running quickly.

So if you want to save some cash, get some cache. Go online or call and ask an IBM xSeries specialist to help size and configure an ICA solution for you.

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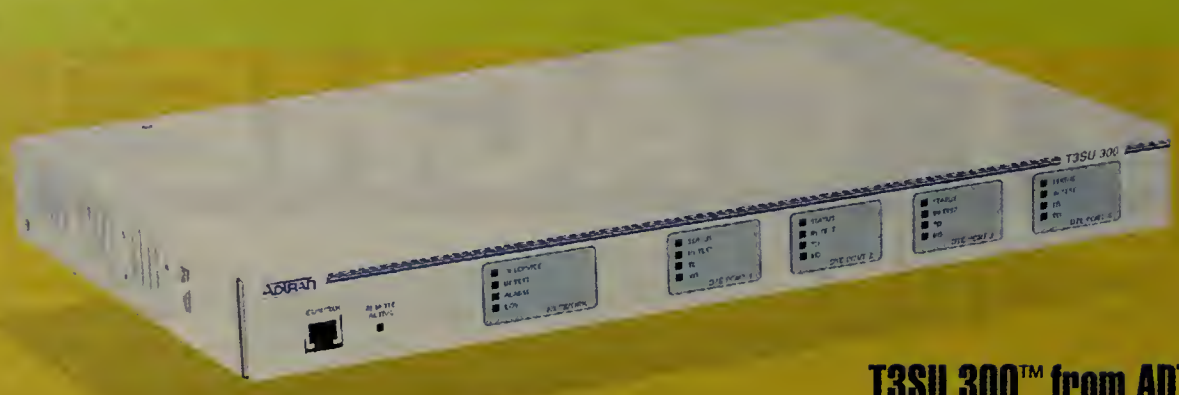
Call toll free **1 866 426-9550** or
Click www.**ibm.com**/eserver/xseries/M116
to buy direct or to locate an IBM reseller.

[1]A single U, or rack, unit is 1.75" or 44.5mm. [2]Volera Excelerator Product Info: Technical White Paper *http://www.volera.com/Products/Excelerator/ProductInfo.html* [3]MHz/GHz only measures microprocessor internal clock speed; many factors affect application performance. [4]Maximum memory may require the replacement of standard memory with optional maximum memory module. [5]GB equals one billion bytes when referring to storage capacity; accessible capacity may be less. Maximum internal hard disk drive capacity assumes the replacement of any standard hard disk drives and the population of all hard disk drive bays with the largest currently supported drives available from IBM. [6]For terms and conditions or copies of IBM's Statement of Limited Warranty, call 1 800 772-2227 in the US and in Canada call 1 800 426-2255. Telephone support may be subject to additional charges. For warranties including onsite labor, customer may be asked certain diagnostic questions before a technician is sent. [7]Pricing shown is price available from IBM directly. Reseller prices may vary. IBM price does not include tax or shipping and is subject to change without notice. [8]SuccessLease is offered by third-party providers of business financing approved by IBM Global Financing. SuccessLease terms and conditions provided by the third party. Featured monthly lease payments include prespecified purchase option at end of lease, to qualified business customers only, installing in the US. Documentation fee and first month's payment due at lease signing; taxes are additional. Offer may be withdrawn or changed without notice. Options cannot be leased separately. IBM reserves the right to alter product offerings and specifications at any time, without notice. IBM cannot be responsible for photographic or typographic errors. SuccessLease and all IBM product names are registered trademarks or trademarks of International Business Machines Corporation. Intel, the Intel Inside logo and Pentium are registered trademarks of Intel Corporation. Other company, product and service names may be trademarks or service marks of others. ©2001 IBM Corp. All rights reserved.

The T3 access device that won't let idle bandwidth rest.



T3SU 300™ from ADTRAN

ADTRAN's multiport T3 DSU/CSU gives you more options for T3 bandwidth utilization than competing T3 access units. The T3SU 300's standard 44.2 Mbps HSSI port is complemented by *three* additional expansion slots that allow you to transport data, voice or video (in any combination) over idle capacity. This product is the only T3 access device that allows you to eliminate an additional 12 incoming T1 circuits by combining voice and data onto excess unchannelized T3 bandwidth. With all this, plus automatic reconfiguration and SNMP/Telnet management, you'd think the T3SU 300 would be expensive. But it's not. It costs less than the competition.

The end of idle T3 bandwidth

- Standard 44.2 Mbps HSSI interface
- Three expansion card slots
- Up to twelve additional T1 ports
- Compatible with leading routers
- Built-in Ethernet interface
- Integral out-of-band management
- Compact 1U chassis

ADTRAN. Ask for it by name.

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